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WILL SOCIALIZED MEDICINE BECOME A WAR EMERGENCY MEASURE?*

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While the subject of socialized medicine may be somewhat threadbare, it is still most important to both the medical profession and the lay public. It has assumed particular importance since the current war emergency arose. In my opinion, an effort will be made to engraft socialized medicine on this country as a war measure, much as was the case with national prohibition and the World War a quarter of a century ago. If so, in a generation or so there will not be enough people with a knowledge of medicine as it exists now, to set up a very impressive demand for its return; thus the danger of irreparable loss.

There are three main reasons why the practice of medicine along some socialistic line may be sought during the present war emergency. First, there is a small but determined and intelligent group of people of radical tendencies who are persistent in their efforts to socialize not only medicine but everything else in this country. This group has heretofore fostered the idea as a means of distributing medical service to the underprivileged. They will not be slow to add to that any additional reasons which may arise from the emergency of war. Second, the physical examinations made of the youth of the land in connection with prospective war service disclose, as has always been the case, a deplorable state of health in such a large percentage of those examined as to become at once a national disgrace. In the third place, the demands due to be made for physicians for our armed forces, our enormously developing industrial enterprises and accentuated public health, will create at least a temporary shortage of practicing physicians for the civilian population. It will be recognized that these reasons are all in line with those originally advanced in support of compulsory sickness insurance, and the large variety of plans which followed, all of them placing the practice of medicine on a mass production basis, with the inevitable loss of the strictly personal and professional element, which has been the safeguard of the public and the medical profession in very delicate situations through the years.

The contention will be, of course, that if our young men who now find themselves physically unfit for military service had received adequate medical care in their early youth, the situation would be vastly better. It will be further contended that if the full time of every physician in the country can, through some arrangement, be utilized, their combined service can be made to cover the deficiencies arising from the war emergency. These contentions cannot be denied, but socialized medicine is not the answer. The medical profession, and those laymen who realize the seriousness of the situation, must see to it that the right answer is made apparent. This is no small task, as many of us can testify. It is rather difficult to disclose to the public the difference between unselfish and selfish propaganda. It

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is difficult to make the public understand that the doctor can plead the cause of scientific, ethical medicine for other than his own self-interest.

The truth of the situation is that the medical profession has been interested in devising ways and means of distributing its services to all who may have need of them, much longer than have those who are now agitating the question. Hundreds of plans designed to accomplish that purpose have been devised and are now on file at the headquarters of the American Medical Association, at Chicago. Many of these plans have been tried and found wanting. A few of them have been found practicable, only to fail because of lack of demand. A few of them are in apparently successful use. It would be interesting to discuss in some detail the reasons why some of these plans have failed while only a few have succeeded, and even those not ultimately so, but time will not permit. Perhaps it will suffice to say that only in certain parts of the country is there any definite demand for medicine on an insurance basis, even where the objectionable features of compulsion are not present. In a still fewer number of communities, all of them congested and most of them largely composed of people of European origin, and with European ideas, is anything like compulsory health insurance under governmental supervision or domination even apparently demanded by the people.

The Federal Government made an extensive survey of the country a few years ago, in an effort to determine whether the people were actually in need of medical attention which they could not procure. A few counties in each state were picked for the test, and laymen were employed to make a house to house canvass and get the answers to a very complicated questionnaire. The notorious and so-called National Health Conference followed. It was held at Washington, D. C., in July, 1938. The conference was supposed to be between the producer and consumer of medical service, with the Federal Government acting as co-ordinator. As a matter of fact, it was a conference between hand-picked representatives of radical organizations, or radical representatives of perhaps conservative organizations, with also hand-picked representatives of the medical profession, very, very few of whom represented the prevailing opinion of the medical profession as a whole with regard to socialized medicine. The plan was very cleverly designed to foist upon the public some sort of Government supervised health insurance. The results of the survey just mentioned were used as evidence of the need of something of the sort.

In the meantime, the American Medical Association conducted a survey of its own, seeking to determine the actual and intimate facts as to the distribution of medical service. Organized medicine had assisted the government in the survey it had made, and it had been agreed that the results of the survey would be made known to the medical profession before anything was done about it. It is unfortunate that this did not happen. The high-powered Interdepartmental Committee to Co-ordinate Health and Welfare Activities of the Government, which reported to the National Health Conference on the survey, might have been saved some embarrassment because of erroneous deductions and conclusions, had something of the sort been done. The American Medical Association survey was conducted by practicing physicians, the only group in the country which could possibly make a dependable survey along such lines. This survey failed utterly to disclose the conditions presumed by the National Health Program to exist throughout the country. It did disclose, for one thing, that the medical profession throughout the United States contributed more than $1,000,000 per day in the form of free medical service for the indigent. It was observed at the time that if Government agencies would take over this burden, the medical profession would be in a position to take care of the so-called "medically needy" on a reduced fee or income basis. Were this done, there would be no problem of distribution of medical service.

Whereas the Government had said there were 40,000,000 medically indigent, the indications were that the number was much nearer 40,000. The Government had said that a family was medically needy which did not receive a total income of more than $800.00 per year. It was found that millions of self-respecting and self-sustaining people throughout the country did not receive that much money per year. Most of them did not consider themselves medically needy, or any other sort of needy. It was quite evident that financial conditions varied so throughout the country, and everywhere were so definitely relative, that no figures could be made generally applicable. The American Medical Association set up for itself a definition of the term "medically needy." It was as follows: "A person is medically indigent when he is unable, in the place in which he resides, through his own resources, to provide himself and his dependents with proper medical, dental, nursing, hospital, pharmaceutical and therapeutic appliance care without depriving himself or his dependents of necessary food, clothing, shelter and similar necessities of life, as determined by the local authorities charged with the duty of dispensing relief for the medically indigent."

Certain figures in connection with the cost of medical service in this country, most of them taken from reports of departments of the Federal Government, may be of interest in this connection. It was estimated that the cost of medical service in America at that time was three and one-quarter billion dollars per year, of which amount the Federal Government was at the time paying one-half billion for the care of its wards and dependents. Including hospital service, the net cost to the public was $3,800,000,000. Breaking these figures down a bit, it seems that the doctor got $750,000,000; the hospital $700,000,000; patent medicine $375,000,000, and cultists $125,000,000. It was clear that should the money spent for futile medical service be paid for competent medical service, there would be no medical problem. We might go further than that, and devote to this cause some of the money now spent for purposes considerably less important than medical service. For instance, we spent $3,000,000,000 on movies; $2,000,000,000 on radios and musical instruments, including the saxophone; $2,500,000,000 on confections, and $4,000,000,000 on tobacco — to name only a few of the non-essentials for which we were spending our money. Of course, no one is going to attempt to tell the people, at least not in a democracy, how they shall spend their money, but it should be equally as democratic to assume that if people do not spend their money for medical service rather than for the non-essentials mentioned, the absence of adequate medical service should be looked upon as strictly their personal affair. After all, it is medical service to the actually indigent that is causing most of the trouble, and certainly the indigent do not belong exclusively to the doctor, although it would seem that many so consider it. As a matter of fact, the above mentioned and complained of National Health Conference recommended a Federal grant for the purpose of caring for the medically needy in the sum of $400,000,000 annually. What really was meant was that the sum mentioned be used to care for what we have ordinarily and loosely considered the poor. Families in the lower-income economic brackets were to be cared for through general taxation and special assessments.

The American Medical Association very promptly assured the Federal Government that it would agree to any system of practice which would insure the distribution of medical service, provided there was no interference with free choice of physician or patient; that no agency would be allowed to come between the physician and his patient, and that there would be no interference with the doctor in his choice of procedure in either diagnosis or treatment. This view is more fully stated in the so-called "Ten Commandments of Medical Economics" adopted by the American Medical Association at about that time. They are as follows:

"I. All features of medical service in any method of medical practice should be under the control of the medical profession. No other body or individual is legally or educationally equipped to exercise such control.

"II. No third party must be permitted to come between the patient and his physician in any medical relation. All responsibility for the character of medical service must be borne by the profession.

"III. Patients must have absolute freedom to choose a duly qualified doctor of medicine who will serve them from among all those qualified to practice and who are willing to give service.

"IV. The method of giving the service must retain a permanent confidential relation between the patient and a 'family physician'. This relation must be the fundamental and dominating feature of any system.

"V. All medical phases of all institutions involved in the medical service should be under professional control, it being understood that hospital service and medical service should be considered separately. These institutions are but expansions of the equipment of the physician. He is the only one whom the laws of all nations recognize as competent to use them in the delivery of service. The medical profession alone can determine the adequacy and character of such institutions. Their value depends on their operation according to medical standards.

"VI. However the cost of medical service may be distributed, the immediate cost should be borne by the patient if able to pay at the time the service is rendered.

"VII. Medical service must have no connection with any cash benefits.

"VIII. Any form of medical service should include within its scope all qualified physicians of the locality covered by its operation who wish to give service under the conditions established.

"IX. Systems for the relief of low income classes should be limited strictly to those below the 'comfort level' standard of income.

"X. There should be no restrictions on treatment or prescribing not formulated and enforced by the organized medical profession."

There have been later pronouncements on the subject, but I like these better than any. They are certainly more descriptive, and bear more directly on the problem.

In most general terms, the favorite suggestion for the application of socialized medicine to the situation existing in this country is the organization of groups of physicians, preferably around hospitals or other medical centers, each with its panel of patients, and each supported by money paid by the patient in the form of monthly assessment, and money appropriated by local, state and Federal governments, on a per capita or percentage basis. The details of the simplest of these plants are enormously complicated, and in none of them is the end of complication in sight.

The medical profession holds that it is impossible to insure against sickness. It is easy enough to insure against death, or destruction of property by fire or tornado, for these conditions are definite, easily demonstrable and generally understood. Illness is not a definite entity. It is not easily identified, and it is impossible to set up rules and regulations that will clearly define what is meant by the term. Every effort has been made to determine a basis for the insurance of the health of the individual, at a rate which the average individual can pay. The medical profession has never offered any objection to health and accident insurance where it is purely a matter of paying the individual when he is injured or becomes ill, a definite amount of money, the fact of illness to be left to agreement between the physician, the patient and the insurance company. The objection lies in the fact that such insurance is usually more expensive than the individual sought to be served can afford to pay. Any insurance company which undertakes to provide medical service for the sick immediately finds that it is necessary to set up multiple safeguards and limitations, else there very promptly will be bankruptcy.

As has already been said, the medical profession insists upon it that any plan to distribute medical service must preserve the personal element existing at this time in the practice of medicine. Of the many plans devised by the medical profession independ-

ently, and by other interested organizations, the most promising are those which do not utilize any of the principles of insurance, and which avoid the practices of collecting agencies. When there is insurance, usually a definite sum of money must be paid for as nearly a definite illness as can be identified in a policy. Thus a sizeable sum of money is required as a reserve, and usually a rather expensive administrative setup. Where a collecting agency is set up, there must still be overhead, and there is more than apt to be dissatisfaction with either collection or distribution, or both.

The better way to produce the results sought is for the medical profession in any given community to organize itself into a partnership, the purpose of which is to arrange for medical service for the people of the community concerned, at a rate of pay which the people concerned can afford, and allow them to pay it on some sort of installment basis. Such a plan is not feasible for a very large partnership, unless, indeed, the partnership has the protection of corporation law. The partnership could hardly be incorporated, because a corporation cannot practice medicine. The Supreme Court of the United States has already said that. Without corporate protection, large partnerships would be extremely hazardous from the standpoint of malpractice damage suits. This jeopardy would be inconsequential in small partnerships. Therefore, usually a special enabling act must be passed by the state legislature before any such partnership can be considered safe. Under such enabling act, all that is necessary is for the doctors concerned to get together, and agree among themselves to serve certain groups, organized on an income basis, at so much per month, and setting out the limitations of the service thus to be rendered. An inexpensive administrative setup is sufficient to collect the money, and a committee of the doctors concerned can easily, and usually without embarrassment, make the distribution in accordance with service rendered. Only the doctor is concerned with any such thing as a schedule of fees. The patient cares nothing about that. What he is interested in is the service. In short, under this simple plan, supported by a state enabling act, the medical profession can proceed with the practice of medicine under the present personal arrangement. The plan has been tried out in three or four states, and is being tried out now, on a small scale, in Texas. In our little experiment only employed groups are cared for at the present time. As actuarial data accumulate, the service will be extended. Small communities where there are no employed groups, can attain the same objectives by organizing their low-income group people in accordance with their needs and their ability to pay.

Doubtless those who are behind the movement to socialize the country have concluded that because of its Good Samaritan nature, the practice of medicine should be the most readily convertible vocation. The truth of the business is, because of that very fact, medicine can never successfully be socialized; the personal element involved prevents it. It has proved to be so everywhere it has been tried.

The fact that so many of the nations of Europe have adopted socialized medicine, and that such systems appear to work fairly well over there, gives the proponents of such a scheme their principal talking point. As a matter of fact, conditions in this country are so different from those in Europe that comparison in this or any other respect is not possible. The average person in Europe has no knowledge whatsoever of the practice of medicine as it exists in America, even considering relatively the same economic brackets. The people of America would not only not be satisfied with, but would not tolerate medical service such as is provided by the panel systems of Europe. Occasionally there is a situation in this country where a modification of the panel system is in successful use, but it must be considered that our policies and procedures are simply engrafted upon such isolated situations. Were the practice of medicine throughout the country of the socialized sort, conditions would be quite different.

Every effort has been made to determine the truth of the claims of proponents and opponents of socialized medicine, as based

on conditions in Europe. There has not been much satisfaction from the many surveys of the practice of medicine in Europe, for the reason that proponents of socialized medicine are usually shown what they want to see, and they are pleased, while opponents of socialized medicine are not shown what they want to see, and they are displeased. Some years ago, the Wisconsin Medical Association sent its Secretary, Mr. J. G. Crownhart, to make such a survey in Europe and in Russia. He wrote a book about it. It is a very convincing book. He came to the conclusion that the primary reason that the people over there want sickness insurance is to provide a basis for claims under compensation wage laws. He found that when the money available for the payment of wage losses and for medical service ran low, retrenchment was invariably made in medical service. Sickness as defined by the insurance laws was usually not identical with sickness as it is understood by medical science. The physician-patient relationship was submerged in the administrative requirements. He found that complex forces were always working to limit the amount of medical service, and that it was necessary to set up elaborate systems of control to insure the government against abuses. The primary responsibility of the physician was to the government and not to the patient. The physician was required to treat his patient in the average manner, as set out by the government, and not in accordance with the latest advances in medicine, if those advances were more expensive. A significant observation was the almost invariable fact that administration requires two laymen to each physician. This makes the administrative cost relatively high, and usually the premiums were not sufficient to meet the flexible and changeable conditions of practice. The patient had no way of knowing whether he was receiving the best treatment. If the services of a physician in this country are not satisfactory, another physician is employed, and maybe a more expensive physician. But the most pertinent observation to us in this country, was that all systems of socialized medicine on the other side provided great opportunity for political manipulation and control. As a matter of fact, free medical service on whatever basis, had in each instance been established as a matter of political expediency.

I would close by saying that the medical profession would be glad, indeed, to be rid of the responsibility of the economics of medicine, could it do so and at the same time preserve medicine as a scientific, ethical entity. It has been alleged through all time that doctors are sorry business men. That, of course, is not true. Minds capable of grasping the intricacies of the practice of medicine will usually be able to grasp the intricacies of economics or finance. The fact that doctors are nearly always devoting their whole time and attention to the study and practice of medicine very largely excludes money matters from consideration, including finance and economics. Perhaps the answer is lay management under medical control. That goes for the Government as well. The medical profession will agree to Government management, if the Government will agree to medical control.

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ACRAL GANGRENE*

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SHREVEPORT

Gangrene of the extremities is not the simple problem that it might appear to be at first thought. Acral gangrene differs in etiology and in pathology, with a concomitant difference in treatment and prognosis. The correct management of such cases requires a thorough knowledge of the various types of gangrene, their causes and their usual course under various therapeutic regimes.

CLINICAL CLASSIFICATION OF GANGRENE

It has been found expedient to classify gangrene of the extremities into two large clinical groups: First, that occurring in extremities without precedent significant

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vascular pathology, and secondly, that occurring in extremities with previous pathology. In the group without previous vascular pathology are those cases of gangrene due to: (1) Trauma; (2) thermal changes; (3) embolism; (4) chemicals or drugs; (5) infections. The group of cases in which vascular pathology pre-exists may be classified as follows: (1) Infectious, including (a) thrombo-angiitis obliterans, (b) thrombo-arteritis and (c) syphilis; (2) degenerative or arteriosclerotic, which includes (a) the senile form and (b) the pre-senile or diabetic form; (3) neurogenic form, principally Raynaud's disease. With the exception of Raynaud's disease and traumatic cases, the vast majority of instances of acral gangrene occur in the lower extremities. Obviously, the responsibility of the physician, prophylactically speaking, is much greater in those cases in which vascular pathology is present, for early diagnosis and the institution of certain preventive measures may avoid many cases of gangrene.

SIGNS OF IMPENDING GANGRENE

The clinical evidences of threatening or impending gangrene are too well known to justify more than their enumeration. The sudden appearance of a cold, pulseless extremity, with cyanosis, paleness, or a peculiar cherry-red color is significant. Pain or paresthesia is variable in occurrence. It is important to detect these changes as early as possible in order to prevent, if possible, the progression of the process to actual tissue death or gangrene.

TREATMENT OF GANGRENE NOT ASSOCIATED WITH PREVIOUS PERIPHERAL VASCULAR PATHOLOGY

To a large extent cases of gangrene or impending gangrene are not preventable except in a general sort of way. The protection against cold and trauma is not always possible. Brahdy[1] has pointed out that exposure to a temperature of below 14° F. is an industrial hazard, particularly in diabetics or arteriosclerotics and that the only satisfactory preventive, if exposure must occur, is proper clothing. Certain drugs, particularly ergot, are definitely vasospastic and numerous cases of gangrene due to its use have been reported.[2, 3, 4] Obviously, therefore, such a drug must be used cautiously, its potential dangers realized and its use discontinued at the first indication of circulatory impairment. Similarly, it must be remembered that thrombosis may occur from stasis or pressure of pillows, in bed-ridden patients, particularly old ones; the prevention of stasis and pressure, wherever practical, may prevent certain cases of acral gangrene.

The active treatment of impending gangrene in patients without pre-existing vascular pathology is not, as a rule, very complicated. Obviously, the same accidents, the same exposures, may occur in individuals with vascular pathology, and this further complicates the treatment. It has been shown[5, 6,7] in cases of trauma, frostbite, ergotism, embolism and thrombosis that many of the clinical evidences of impaired circulation are not due to the actual primary pathology but to a widespread vasospasm in the same extremity, reflexly produced. Therefore, one of the prime therapeutic indications is the relaxation of such vasospasm. This may be accomplished by novocain block of the regional sympathetics,[6] by the use of papaverine hydrochloride[8, 9] and by the proper use of heat, both locally and reflexly.[10]

Too often is treatment accompanied by elevation of the extremity and the haphazard use of the heat tent. Both of these procedures may facilitate rather than retard the development of gangrene. The level of circulatory efficiency is usually a little below the level of the heart. Elevation of the extremity may not only make it more difficult for blood to pass through the arteries, but it also increases venous drainage. Venous stagnation is desirable in threatening gangrene as it causes the prolonged retention of nutritive material and may produce a more effective tissue pressure of the available blood supply by delaying its removal.[11, 12] Similarly, the injudicious local use of heat may be distinctly harmful. As Freeman[13] has pointed out, gangrene results from a discrepancy between tissue needs and the supply of blood to meet these demands. Moreover, tissue metabolism is increased at higher temperatures. If the

heat be excessive, it will create added demands and make the available circulation even less effective. Usually it is sufficient simply to prevent heat loss by protecting the limb with sheet cotton and perhaps the use of very moderate external heat.

Embolectomy in selected patients has proved a feasible procedure.[14, 15] The principal difficulties are the differentiation of thrombosis from embolism, and secondly, the exact localization of the embolus. While this differentiation is not always possible clinically, it should be recalled that in embolism there is frequently a primary source for an embolus which is clinically evident, such as a valvular heart lesion (70 per cent of cases)[16] and the vessels are usually previously normal. The onset of embolism is usually quite acute, and pain, though not invariable, is ordinarily quite severe. Localization is not always easy, the site of evident vascular impairment usually being some distance removed from the actual obstruction. Oscillometry and arteriography are of much assistance in this localization. Thrombosis is usually the deciding factor in gangrene from any cause, but does not occur unless there has been some previous significant vascular obstruction and stasis, either due to inflammation, organic vascular changes or pressure.

A localized infection, such as of a toe, may produce localized arteriolar thrombosis and precipitate gangrene. It is important to differentiate such an infectious gangrene from one which is primarily a vascular gangrene that has become secondarily infected. As Williams and O'Kane[17] have pointed out, if there is adequate circulation and the gangrene is of infectious origin, the therapeutic indications are the treatment of the infection and a strictly localized amputation.

As a matter of fact, since in this whole group the vascular tree has been previously essentially normal, it is possible to be more or less conservative when gangrene actually develops. That is to say, since the vessels are essentially normal, collateralization is usually excellent and it is usually possible to permit more or less auto-amputation, or at least confine any amputation to the actually necrotic area after this has been well demarcated; healing usually occurs with little difficulty.

TREATMENT OF GANGRENE ASSOCIATED WITH PREVIOUS PERIPHERAL VASCULAR PATHOLOGY

Gangrene is better prevented than treated. Particularly is this true in persons with vascular disease. Obviously, any of the so-called accidents and emergencies listed in the previous group might just as well occur in a limb with previous vascular disease; this further complicates the matter. But there are a group of vascular diseases which might be recognized and gangrene prevented in many instances. The early diagnosis of such pathology is not difficult and may ordinarily be accomplished without special apparatus.[18, 19] Clinical evidences of impaired peripheral circulation include intermittent claudication, rest pain in the legs, cold extremities, color changes, trophic disturbances and absent or deficient circulation as determined by palpation, oscillometry or some similar procedure. Once the presence of organic vascular pathology is known, two things must be attempted: (1) The development of collateral circulation, and (2) the avoidance of precipitating factors. The principal precipitating factors are: (1) Trauma, (2) infections, and (3) undue heat or cold. These factors may increase tissue demands so far beyond the ability of the deficient circulation to meet that gangrene may be thus precipitated.

The two principal vascular diseases which result in gangrene are arteriosclerosis, both senile and diabetic, and thromboangiitis obliterans or Buerger's disease.

The development of collateral circulation is usually more effective in the thromboangiitic than in the arteriosclerotic group because of the fact that usually there is more vasospasm in the case of Buerger's disease and the thrombi permit of canalization more readily than in that associated with arteriosclerosis.

These procedures, aimed at the development of collateral circulation, include principally: (1) Buerger's and Allen's active vascular exercises; (2) passive vascular exercises either with the suction-pressure boot, intermittent venous occlusion or the San-

der's oscillating bed; (3) the avoidance of tobacco, because of its vaso-constrictive effects, particularly in Buerger's disease; (4) the judicious use of alcohol and other vasodilating drugs; (5) local and reflex heat; (6) hydremic or plethoric treatment with hypertonic (5 per cent) saline infusions, and (7) the relief of pain. Not only do procedures for the relief of pain actually increase the available blood supply, but they make possible the effective use of other conservative measures that might not otherwise be tolerated.[20, 21]

If gangrene actually develops, one can, as a general rule, be more conservative in the case of thrombo-angiitis. Conservatism, in fact, is usually used in Buerger's disease unless there is intractable pain, spreading gangrene or infection or absolutely no response to conservative measures, that is, no tendency to heal. Because of the usually associated vasospasm, measures to combat it, if present, are necessary. These include regional sympathectomy, abolition of the use of tobacco and various vasodilating drugs. The other conservative measures enumerated above are likewise more effective in Buerger's disease than in arteriosclerosis.

If amputation becomes necessary in Buerger's disease it can usually be relatively low, frequently simply a local amputation of the involved toe. The level of successful amputation will depend upon (1) the degree of vasospasm and (2) the level of circulatory efficiency. The more vasospasm and the lower the level of circulatory efficiency, the lower and more conservative can be the amputation. The degree of vasospasm may be determined by comparing skin temperatures before and after such vaso-relaxing procedures as peripheral nerve block, sympathetic block, reflex heat or anesthesia. The level of circulatory efficiency may be determined by skin temperatures, oscillograms, arteriography, the histamine test, the Matas-Moszkowicz test and, at operation, the actual appearance of the tissues.

In arteriosclerotic gangrene one can usually be less conservative and must amputate sooner and higher than in thrombo-angiitis. Moreover, in diabetic arteriosclerotic gangrene, since there is usually a controllable additional factor (diabetes) and since the disease occurs on the average in younger individuals,[22] one can be somewhat more conservative than in the senile form, unless severe spreading infection is present. Usually vasospasm is minimal in arteriosclerotic gangrene, and measures aimed at increasing collateral circulation are of questionable value.

Amputation is either emergency or elective. In the emergency type, usually spreading infection or gangrene necessitates the procedure. The usual type of amputation is the circular no-flap variety, well above the involved area.

In doing an elective amputation two things must be remembered; that the lower the amputation the lower the mortality and secondly, the prosthetic necessities must not be neglected. That is, rehabilitation must be foreseen and a usable stump should be obtained. The best elective amputations in order are: (1) Through the toes or adjacent metatarsals; (2) Syme's ankle amputation (if one is sure to be able to secure a good prosthesis); (3) Smith's mid-leg amputation; (4) Callander's transcondylar amputation, and (5) Gritti-Stokes' supracondylar amputation.

SUMMARY AND CONCLUSIONS

1. Acral gangrene may be clinically classified into that occurring in limbs previously free of vascular pathology and that occurring in limbs with pre-existent peripheral vascular disease.

2. Little can be done to prevent gangrene occurring in previously normal legs except in a general way, but if gangrene occurs, the essential treatment is relaxation of associated vasospasm.

3. The early diagnosis of peripheral vascular disease is essential in the prevention of gangrene in these cases.

4. Once peripheral vascular disease is known to be present, attempt must be made to develop collateral circulation and to avoid precipitating factors, principally trauma, infections or excessive heat or cold.

5. Development of collaterals is usually more effective in thrombo-angiitis than in arteriosclerosis.

6. Amputations in thrombo-angiitis can usually be more conservative than in arteriosclerotic gangrene.

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DISCUSSION

Dr. Michael DeBakey (New Orleans): The thorough, lucid, and perspicuous presentation of Dr. Abramson deserves special commendation. In a complete but succinct manner he has developed the subject of acral gangrene on a rational basis and elucidated its modern conception. His presentation further serves as an indication of the rapid strides that have occurred in peripheral vascular disease during recent years.

Not less than a decade ago a consideration of the subject of gangrene of the extremities would have consisted essentially of a discussion of its pathologic and surgical phases. Moreover, the treatment of peripheral vascular disease was somewhat synonymous with that of acral gangrene. However, during the past decade rapid advances have been made, particularly in the methods of study of the peripheral circulation, and as a result of these intensive investigations there has evolved a more rational conception of peripheral vascular disease. Accordingly there has developed an increasing recognition of the associated fundamental physiologic derangement which in peripheral vascular disease precedes the more apparent anatomico-pathologic changes manifested by gangrene.

Actually peripheral vascular disease signifies in its simplest terms a disturbance or actual diminution in the normal amount of circulating blood to a part. When this decrease attains a degree insufficient to meet the demands of the tissues, gangrene results. However, this is the terminal stage and obviously effective therapeusis must be instituted before this late stage has been reached, when irreparable damage to tissue has occurred. For this reason it becomes increasingly significant that peripheral vascular diseases should be considered in the light of disturbed physiology rather than as pathologic lesions. On the basis of this concept the decrease in circulating blood to the peripheral tissues may be due to two factors; (1) obliterative structural change in the vessels, and (2) abnormal vessel spasticity. Whereas both the factors may be present, one or the other usually predominates. However, of greater significance is the fact that although the former is an unalterable pathologic lesion which resists any therapeutic attack, the latter is a physiologic or functional derangement which can be satisfactorily influenced by appropriate therapy. Effective therapeusis in peripheral vascular disease consists essentially in increasing the blood supply to the part. This obviously cannot be accomplished by an attack upon vessels which have already undergone structural change. On the other hand, vasospasm is not an unalterable pathologic lesion, but is primarily a functional disturbance of the vessels which is amenable to certain therapeutic measures. Accordingly successful therapy in peripheral vascular disease must be based upon an attempt to relieve vasospasm or produce vasodilation.

This rational conception of peripheral vascular disease forms the basis of the classification described by Ochsner and DeBakey, that is, (1) vasospastic functional disease, (2) vasospastic organic disease, and (3) organic degenerative disease. This classification clearly emphasizes the decisive importance of vessel spasticity. It should be realized, of course, that whereas vasospasm may be the

predominant factor in certain types of peripheral vascular disease in which there is little or no structural vascular change, it exists also in those conditions in which organic vessel disease is the prominent feature as it may involve the collateral vessels. Thus, the determination of the presence or absence of vasospasm and its extent becomes of increasing prognostic and therapeutic significance. Its importance therefore has been justifiably emphasized by Dr. Abramson whose scholarly discourse has been not only enjoyable but most gratifying to one particularly interested in this rapidly developing subject. His review of the literature has been pertinent, extensive, and thorough, and the publication of this excellent presentation will serve as a further source of exhaustive information on this subject of growing importance.

Dr. Isidore Cohn (New Orleans): The paper which Dr. Abramson has presented is a splendid summary both of the literature and his personal experience in the management of vascular diseases involving the extremities. It represents a tremendous amount of literary research, as well as the utilization practically of the information which he has obtained.

In the early paragraphs of the paper he spoke of the necessity of being gangrene conscious. That implies that no physical examination is complete without determining whether the dorsalis pedis and the posterior tibial pulses are palpable. If this becomes a routine practice in physical examinations many cases of vascular disease involving peripheral vessels will be picked up earlier than they are at the present time. The more we look for things the more we find them.

I can subscribe heartily to all that Dr. Abramson has said with reference to embolism. The earlier operation is performed, the better the results will be. Local and general heparization are indicated as has been shown by the work of Murray of Toronto.

The attitude which one assumes toward so-called peripheral vascular diseases varies in proportion as he believes that it is limited to the periphery and the extent to which he believes that vasospasm in organic diseases is the important factor.

It is my conviction that thrombo-angiitis obliterans or Buerger's disease is essentially a disease generalized in character involving the entire vascular tree, even the coronary vessels. If it can be shown that spasm is the predominant factor, the release of vasoconstrictor factors is justifiable. When organic changes are present, localized operative procedures are not indicated in my opinion. The general management of the feet of those afflicted with vascular disturbances as outlined in the paper is extremely important. May I stress the need for intelligent advice to all elderly people with regard to proper protection to their hands and feet.

I can attest to an experience with simple mechanical measures, such as pavaex of Herrmann and Reed in Buerger's disease, diabetes, and arteriosclerosis, over a period of eight or nine years. The results have been good, not uniformly successful. Extravagant claims for any particular procedure are not justified by end results.

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THE WATERHOUSE-FRIDERICHSEN SYNDROME*

(ACUTE BILATERAL SUPRARENAL HEMORRHAGE)

A REVIEW OF THE LITERATURE AND A REPORT OF TWO CASES

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AND
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SHREVEPORT

The disease now known as the Waterhouse-Friderichsen syndrome was recognized as an entity by Little[1] in 1901. In 1911 Waterhouse[2] reported a case and reviewed fifteen others. He described the syndrome and gave an accurate account of the symptomatology and pathology. Friderichsen,[3] in 1918, published a report of two cases of his own and reviewed the twenty-eight cases in the literature at that time. In 1934 Bamatter[4] published a report of thirty-eight cases, two of which were his own. Important reviews of the literature have been published by Aegerter[5] in 1936, Sacks[6] in 1937, Kunstadter[7] in 1939, Moss and Schenken[8] in 1940 and Lindsay et al.[9] in 1941, the latter authors collecting 89 cases and adding seven of their own. Since that publication two cases[8] have been added; the addition of our two cases brings the total to 100 now on record, of which 42 have been reported from the United States.

The following two cases are presented as an atypical and a classical example of the Waterhouse-Friderichsen syndrome and are illustrative of the pathologic findings in this condition:

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*Read before the sixty-second annual meeting of the Louisiana State Medical Society, Shreveport, April 22, 1941.

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CASE NO. 1

A. M., a colored male, aged 31, was first seen at 11:30 a. m. December 4, 1940, having a severe chill and a temperature of 104° F. He gave the following brief history: For the past ten days he had noticed mild pains in his hands and feet but otherwise had been in good health until 10:00 a. m. December 4, when, while working in a boiler room, he felt as if he had gotten too hot. After a rest he began work again but soon had the aforementioned chill.

When first seen the impression was that the patient had a left lower lobar pneumonia. The red blood cell count was 4,560,000, white blood cell count 15,950 with 80 per cent polymorphonuclear leukocytes and 20 per cent small lymphocytes. He was immediately hospitalized and sulfathiazole started (grains 30 every four hours). At 6:00 p. m. the patient appeared to be much worse, temperature was 104.3° F., pulse 128, respiration 46 and blood pressure 60/0. During the night he was given metrazole, oxygen, glucose and saline; and the following morning his temperature was 98° F., pulse 140, and blood pressure 70/50. Blood studies at this time showed a red cell count of 5,090,000, hemoglobin 98 per cent and a white cell count of 22,100 with 94 per cent polymorphonuclear cells. Blood sulfathiazole was reported as 4.0 mgm./100 c.c. A 24 hour blood culture was reported as negative and an x-ray of his chest showed no pneumonic infiltration. The patient was rational but extremely apprehensive. He had complained considerably during the night of a "stomach ache" and had vomited a large amount of "dark-brown coffee-appearing fluid."

Because of the change in the clinical picture, sulfathiazole was discontinued and morphine, saline, glucose and 500 c.c. of whole blood were given. Even though such supportive therapy gave a blood pressure reading of 80/50 the patient rapidly lapsed into coma, his temperature rose to 105° F., and he expired at 8:20 p. m. December 5, 1940, 34 hours after the onset of his first symptom. Shortly before death catheterization yielded no urine.

Except for the observations mentioned there were no other physical signs noted. There was a hyperemia of the conjunctivae which increased to rather extensive subconjunctival hemorrhage at the time of death. No other purpuric manifestations were noted. The abdomen remained soft and flat throughout the course of the illness. The antemortem blood culture remained negative. A stool specimen showed much mucus with some red blood. Stool cultures were negative for the typhoid-dysentery group but did show a heavy growth of hemolytic *E. coli.*

Necropsy: Postmortem examination showed a well nourished and well developed colored male. The conjunctivae were quite red, with petechiae and ecchymoses abundant in the bulbar portion. The nail beds were pink and free from petechiae. There were no abnormal pigmentations or discolorations of the skin.

The meninges were injected but showed no exudate. The convolutions of the hemispheres were flattened, with corresponding narrowing of the sulci. The lateral ventricles were of normal size with a smooth grayish-pink lining. The choroid plexus was dark red and contained one 6 mm. sized cyst. The cut surfaces of the brain were slightly bulging, the small vessels were filled with blood and there was a diffuse wetness. The brain substance was softer than normal. The lining of the fourth ventricle showed several large ecchymoses. Except for congestion and slight perivascular hemorrhages the microscopic sections were without significance.

The lungs were non-adherent and neither lung cavity contained free fluid. Many petechial hemorrhages were present in the visceral pleura. Also, dark red slightly raised broad bulgings were observed in both lower lobes. Section of those showed dark red, moist, bloody surfaces. The soft tissues in the mediastinum and thymus were quite edematous and petechial hemorrhages were observed rather diffusely.

The pericardial sac contained about 60 c.c. of straw colored fluid. Petechiae and ecchymoses were diffusely distributed in both layers of the pericardium and were especially abundant near the cardiac base.

There was no free fluid in the abdominal cavity. Petechiae and ecchymoses were observed here as in the other serous surfaces. The mesentery and retroperitoneal tissue were edematous and studded with small hemorrhages.

The spleen was shrunken and weighed less than 10 grams. Microscopic examination showed a thick acellular capsule with the architecture of the gland obliterated by thick trabecular cords of dense fibrous tissue. The malpighian bodies could not be identified. The red cells were not sickled.

The renal pelves were of normal size and their lining showed small and large hemorrhages. Microscopic sections showed marked congestion and hemorrhage into the tubules.

The adrenals weighed together 14 grams. A normal yellow cortex was replaced, except for small areas, by dark red hemorrhagic discoloration. The medullary portion was of the same color. Microscopic examination showed the greater portion of the organ obliterated by diffuse hemorrhage, unassociated with thrombosis.

The lining of the intestinal tract showed the same mucosal petechiae, in some areas measuring 1 cm. in diameter.

No organisms were demonstrable in any of the microscopic sections.

CASE NO. 2

Mrs. C. H. G., aged 40, a white married female, was admitted to the hospital at 12:00 noon, January 2, 1941, and expired 14 hours later.

Except for an abscessed tooth which had been treated some time previously the patient was asymptomatic and partaking of her usual household activities until January 1, 1941, when at about 9:00 p. m. she complained of a mild sore throat and thought that she was taking the "flu." Though she slept the greater part of the night she complained of feeling chilly, had some abdominal cramps, mild nausea and vomited twice. When her husband left at 9:00 a. m. the next morning she was asleep and apparently looked well.

When seen in the home two hours later she was complaining of abdominal cramps, painful joints on the least motion, and a generalized purpuric eruption. She appeared to be in shock with a subnormal temperature, feeble pulse of 120 and blood pressure 60/40.

When admitted to the hospital her temperature was 102°F., pulse 160 (?), respiration 46 and blood pressure 42/0. Though slightly stuporous she was quite cooperative. The body was covered with fine dark colored petechiae, implanted on a mottled cyanotic skin. The conjunctivae and gums were not spared. Within the hour these petechial areas were irregular shaped, coalescing, port-wine colored, ecchymotic splotches which gradually increased in size so that the whole body assumed the appearance of postmortem lividity.

The pupils were small (morphine having been given in the home), regular and equal, though reacted rather sluggishly to light. The neck was not stiff. Excruciating pain was experienced when any joint was manipulated though none were swollen. The abdomen was slightly distended and showed moderate tenderness throughout but no masses or areas of muscular rigidity were present.

The laboratory findings showed a red cell count of 4,920,000 and a white cell count of 58,900 with 5 per cent metamyelocytes, 13 per cent myelocytes, and 76 per cent segmented and non-segmented polymorphonuclear leukocytes. The platelet count was 210,000, the bleeding time one minute 30 seconds and the coagulation time two minutes. Blood culture reported 24 hours after admission was negative.

The patient was immediately given whole blood, large doses of saline, dextrose and eschatin intravenously. Immediately following such her pulse could be counted at 140 and blood pressure 60/40. At this time, about five hours after admission, she voided about 20 c.c. of bright red urine. She soon lapsed into coma, temperature, pulse, and respiration gradually mounted and in spite of adrenalin, eschatin, saline, sulfanilamide and meningococcus antitoxin (80,000 units) intravenously, she progressed rapidly downhill. Twelve hours after admission she developed a stiff neck. Spinal fluid examination at this time showed a pressure of 11 cm., a clear fluid with 8 cells, 7 polymorphonuclear leukocytes and 1 small lymphocyte. No red blood cells were present. Direct smears of the spinal fluid showed no organisms and the culture was reported later to be negative. Two hours later she expired. Postmortem cardiac blood culture was reported as negative.

Necropsy: The body was covered with slightly raised violet to dusty-red colored, diffusely mottled areas varying in size from a few millimeters in diameter to huge confluent areas. The legs and lower thirds of the thighs were entirely discolored by confluence of these purpuric areas and foci.

The pleural spaces were free of fluid and the pleural layers showed no petechiae.

Three or four flea-bitten hemorrhages were present in the epicardium covering the base of the heart. The myocardium was grayish red, slightly swollen and softer than normal. A band-like hemorrhage extended from the base of the aortic orifice beneath the endocardium to the posterior wall of the left ventricle.

The peritoneum was bluish grey in color and free from hemorrhages. The mesenteric vessels were quite distended with blood. The liver was without consequence as was the spleen, except for acute hyperplasia (septic splenitis). The intestinal mucosa was explored throughout and free of petechiae except for several short segments of the ileum. Both renal pelves showed innumerable small hemorrhages. The urinary bladder contained a small amount of smoky urine and its mucosa showed an occasional dark red hemorrhage.

The adrenals weighed together about 20 grams, were dark red in color and the gross architecture was destroyed by massive diffuse hemorrhage. Microscopic sections showed the same as the gross. Sections of the adrenals stained by Gram's method showed rare isolated bodies resembling negative cocci. Since none were found in clusters or diplo the exact morphology of these organisms must remain in doubt.

The brain was not examined, since the spinal fluid taken a short time before death was normal.

SYMPTOMATOLOGY

The history and symptoms are so frequently repeated in the reports of other cases that a no more dramatic episode may face the clinician than the evolution of the so-called Waterhouse-Friderichsen syndrome. The majority of cases occur in patients under the age of one year. Aegerter states that 70 per cent of the patients have been under two years of age and Lindsay et al. report 90 per cent occurring in children under the age of nine years. Although the syndrome is most frequent in children, only seven cases are reported in American pediatric literature.[10]

The typical history states that the patient was in perfect health until the onset

of the disease. The only cases without sudden onset are those complicated with other conditions which might alter the characteristic early signs.

The signs and symptoms, though not characteristic at the onset, gradually crystallize into an unmistakable pattern. The initial symptom may be restlessness, headache or malaise but is more likely to be referred to the gastrointestinal tract. Vomiting is an early feature and abdominal pain is mentioned frequently enough to make its occurrence more than coincidence. This is found to be as frequent in adults as in children. Anorexia, a flushed face, and perhaps a moderate amount of fever may be the only signals to warn the parent of the child's impending condition. The patient soon becomes stuporous and this may be mistaken for healthy slumber.

Within eight to 12 hours of the onset a striking cyanosis occurs. This is frequently the first symptom that impresses the gravity of the condition on the mind of the relative or friend and brings the patient to the physician. Sacks notes that the cyanosis was present in 46 per cent of the cases and varied from a deep blue, involving both the lips and the nails, to an alternation of cyanosis with pallor. Occasionally a cyanotic mottling is present. This deep cyanosis, when present in an acutely ill child, is diagnostic. Following the cyanosis, petechial mottling of any part of the body appears. Their onset is sudden and they increase in size with astonishing rapidity into a vivid purple macular rash. It is frequently noted that the rash was not present when the child left the house for the hospital; or as in Kunstadter's case, a graduate nurse observed the child to become cyanotic and the skin ecchymotic while she "watched dumbfounded." As the hemorrhage involves more and more of the skin area, the body surface assumes the postmorten lividity described by Aegerter. In a small proportion of cases the hemorrhage into the skin does not advance beyond the petechial stage. Concomitantly with the appearance of the rash, or shortly following, the individual becomes stuporous or semicomatose. Out of 66 cases that could be reviewed, fourteen showed neither macular nor petechial hemorrhages.

At this time the patient is acutely ill. There is a characteristically septic spiking temperature. Early in the disease the increase in pulse rate is proportionate to the rise in temperature, but as the disease progresses the rate mounts as the circulatory system fails. When the adrenal damage has taken place the extremities are cold, while the body is hot. Symptoms of early meningeal involvement are not uncommon at this time though neurologic examination gives variable results. Spinal fluid examination at this time is of interest by the infrequency of abnormal findings. Less common neurologic findings, as listed by Aegerter, include muscle flaccidity, tremor, strabismus, altered reflexes, convulsions and rigidity of the abdominal muscles.

Laboratory examinations may not be helpful. A leukocytosis would be expected. Bleeding and coagulation time are normal. Platelet counts are usually within normal limits. Slight elevation of non-protein nitrogen is expected because of the peripheral circulatory failure. Bamatter states that low blood sugar values are pathognomonic of the disease condition, nevertheless concludes that the converse may be true as evidenced in his own case report.

PATHOLOGY

The most constant pathologic condition at autopsy is massive adrenal hemorrhage, occurring in 95 per cent of the reported cases, according to Aegerter. These findings vary from petechial hemorrhage to bleeding, converting the gland into an immense necrotic purple "blood cyst." When the bleeding is mild in degree it is generally stated that the medulla is more involved than the cortex. In unilateral hemorrhage the right adrenal is more often damaged than the left. Microscopically there is complete obliteration of all three glandular layers.

In about half of the cases small hemorrhages are present in the serosa of the peritoneum, pleurae or pericardium. A few reports mention hemorrhage into the mucosa of the gastrointestinal tract. This according to McLean and Caffey[11] may account for

the abdominal pain and diarrhea sometimes seen.

Rabinowitz[12] and Bamatter have drawn attention to the prominence of the thymolymphatic system in those who succumb to this disease condition. The weight of the gland is reported from 17 grams to 41 grams, with an average of about 25 grams. Enlarged and often hemorrhagic, bronchial, mediastinal, mesenteric glands, and Peyer's patches are frequently present. The definite relationship of these findings to the controversial "status thymolymphaticus" remains unknown.

ETIOLOGY

Up until 1916, the number and variety of organisms cultured from blood, adrenal gland, and skin lesions included the streptococcus, the staphylococcus, colon bacillus, *Bacillus pyocyaneus, Bacillus Friedländer* and the pneumococcus. Of the 38 cases collected by Bamatter in 1934 the etiologic agent had been isolated in only 10, perhaps, as has been suggested because of faulty methods employed in many of the early cases. Since that time the meningococcus has been identified as the causative organism with increasing frequency and there is little doubt that the disease syndrome is most frequently caused by the meningococcus. The only other organism obtained with any frequency is the *Streptococcus hemolyticus* though recently Lindsay et al. report the *Haemophilus influenzae* as isolated from both the heart's blood and cisternal fluid in two cases.

It is interesting to attempt correlation of the pathologic changes and possible etiology with the more or less characteristic clinical and laboratory manifestations of this syndrome. Such clinical findings as hypotension, low blood sugar, low carbon dioxide combining power, elevated non-protein nitrogen, weakness, muscle flaccidity, vomiting and circulatory collapse have long been accredited to the functional failure of the adrenal gland. Various theories have been advanced as to the causation of the adrenal failure, though a combination of venous thrombosis and an increased permeability due to toxins from virulent organisms lodged in the vessels perhaps explains the majority of cases. It is now well recognized that the adrenal gland exerts a controlling influence on the metabolism of sodium ion excretion and in acute adrenal failure depleting the blood of both sodium and chloride. Concurrent with the loss in sodium is a relative dehydration in the kidneys. Thus the actual blood volume may be diminished, which conceivably might result in shock with its resulting chain of symptoms. If there is a marked fall in the blood sodium concentration, one may assume that death is probably due, in part at least, to the collapse following adrenal destruction.

TREATMENT

Since the diagnosis must be corroborated by postmortem observation it is difficult to evaluate the effect of adequate therapy. According to the pathology, therapy should theoretically consist of: (1) Measures to combat the suprarenal damage; (2) measures to combat the invading organism; and (3) supportive treatment.

Though there is no evidence that epinephrine is responsible for the maintenance of normal blood pressure,[13] it does seem to increase the potency of cortical extract and should be supplied with cortin in a desperate effort to maintain somatic equilibrium.

If adrenal hemorrhage causes a rapid loss of the sodium ion from the blood stream with resulting diminished blood volume and shock, it would seem rational to replace the sodium ion with intravenous sodium chloride. This can be given in glucose to combat the hypoglycemia, acidosis and dehydration.

Since the majority of cases are due to the meningococcus, antimeningococcus antitoxin should be given intravenously. Lindsay feels that anti-influenzal serum should be administered intramuscularly as well because of the delay in bacteriologic reports.

Although sulfanilamide has been favored by the majority of investigators, and its therapeutic effect against the meningococcus has been proved repeatedly since the work of Schwentker[14] in 1937, it is possible, judging from recent reports, that sulfapyridine will replace it as the drug of choice. Stott and Copeman,[15] during the prevalence of cerebrospinal fever and

chronic meningococcic septicemia in the recent British Expeditionary Force, are quite convinced of the therapeutic effectiveness and superiority of sulfapyridine to sulfanilamide. Sulfapyridine also has the advantage of being active against the pneumococcus, a possible etiologic agent in this condition. That sulfanilamide is of little value in meningitis due to the *Haemophilus influenzae* is well established, but encouraging results have been obtained by Neal, Appelbaum and Jackson[16] in the use of sulfapyridine in this condition. Though sulfathiazole is effective against the meningococcus, pneumococcus, staphylococcus and the *Haemophilus influenzae*[17] the necessity of intrathecal administration because of the non-diffusibility of the drug into the spinal fluid should not limit its use in this syndrome unless further investigational use proves its inferiority.

Due to the fulminating character of this malignant syndrome, an immediate supply of the above mentioned therapeutic measures is essential if we hope to reduce the present 100 per cent mortality. Carey[18] has recently reported a case of recovery in a 27 year old white female, although therapy was not instituted for approximately 21 hours after the onset of symptoms; his success in an apparent case of this nature is encouraging.

COMMENT

Attention is drawn to the ease of diagnosis of the Waterhouse-Friderichsen syndrome if the condition is kept in mind. In the colored race if the purpuric manifestations are mild the condition is easily overlooked. This perhaps explains the nil reports of this disease entity occurring in an adult negro. That the meningococcus is not the sole cause of the disease syndrome must again be emphasized.

SUMMARY

The Waterhouse-Friderichsen syndrome was first accurately described in the literature in 1901. The symptomatology includes sudden onset, malaise, restlessness and often gastrointestinal symptoms. These are followed shortly by lethargy which rapidly deepens into coma. High fever, weak, rapid pulse, intense cyanosis and purpuric hemorrhages into the skin are characteristic. The disease is usually fatal in from sixteen to twenty-four hours. Massive bilateral adrenal hemorrhage is the most common postmortem observation. The etiology is probably a fulminating septicemia. Suggested therapy includes adrenal cortex extract, epinephrine, sodium chloride, fluids, antimeningococcus antitoxin, sulfapyridine, dextrose, blood transfusions and supportive therapy.

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DISCUSSION

Dr. T. B. Tooke, Jr. (Shreveport): As coauthor, there is little for me to add to Dr. Drummond's dissertation. We present these cases in full recognition of the fact that Drs. Moss and Schen-

ken presented two cases of this syndrome a year ago before this same gathering.

However, because of the relative paucity of reports on this disease, we feel justified in bringing these two additional cases to your attention. In order to recognize this syndrome, one has only to keep its possibility in mind because there can be no picture any more striking than has occurred in practically every case history that one reads in the literature. True that to the present, little or nothing of any avail can be done from a therapeutic standpoint; still diagnosis remains vitally important. Certainly if any treatment will ever be successful in such a fulminating disease, immediate recognition will be necessary.

Practically all those men who have seen and reported this syndrome have expressed the opinion that it has occurred far more frequently than has been recognized. The occurrence of two cases within a month of each other in our Clinic leads us to the same opinion.

In addition these two cases add to the small percentage of occurrence in adults since as Dr. Drummond has pointed out, 90 per cent of all reported cases have occurred in children under nine years of age. No one has ever reported as having observed this syndrome in the negro.

Finally, we regret that in our failure to isolate a causative organism, we add little to the somewhat controversial question of etiology.

Dr. Ralph Talbot (Monroe): I saw a child who had exstrophy of the bladder. No surgery was done because it was a hopeless thing. The resident told me at once, "This baby will die suddenly and you will find at autopsy that the suprarenals are large and hemorrhagic." The baby died and the supra-adrenal glands were very large. I know there is no connection between this case and Waterhouse-Friderichsen syndrome but it occurred to me that it might have been something on the same order.

SOME RADIOLOGIC PROBLEMS IN STUDIES OF THE CHEST*

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NEW ORLEANS

In recent years there has been considerable interest taken in routine mass x-ray surveys of the chests of groups of individuals. Industry has played its part in endeavoring to eliminate before employment those individuals who might subsequently become a liability because of the hazards of their work. This is particularly true in those industries in which the workmen are exposed to unusual amounts of silica or other irritant dust. Routine x-ray chest surveys also furnish the employer, in the case of those who are accepted for employment, with a concrete record of the condition of the employee's lungs and heart, at the time of his connection with the firm. Anyone who has any experience with the Workmen's Compensation law or similar lawsuits will immediately see how valuable such a record might be. To the individual employee a pre-existing radiograph of his chest may be of considerable value, in case of subsequent illness, for comparison with radiographs made at the time of his illness.

Group radiographic surveys of individuals already employed, if made semi-annually, annually, or even bi-annually also provide some measure of protection from a health hazard standpoint to both the individual employee and to the employer.

Similarly some medical schools and schools of nursing have been adopting these routine x-ray surveys as a protective measure mainly to the individual student. The upsurge in preventive and socialized medicine during the present administration has encouraged many local and state health authorities to embark on similar surveys.

Where great numbers of individuals are to be surveyed, as in city or statewide surveys the cost of such a survey has been previously nearly prohibitive. In recent years, however, a method of photographing the fluoroscopic image of the chest has been developed which has brought the cost down to practical levels. By means of special apparatus such photo-roentgenographs are made on either 4 x 5 inch films or on 35 mm. films. Since the cost of a 4 x 5 film and the processing thereof is about 10 per cent of a 14 x 17 inch film, which is the size ordinarily used in chest work, a very material saving is effected. These miniature films are unusually accurate. In a series of 1610 persons, Potter, Douglas, and Birkelo report only 2.6 per cent error in detecting 271 persons with active tuberculosis. In other words, they are 97.4 per cent efficient, even

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including minimal lesions. They are large enough to view directly without enlargement or projection. The smaller 35 mm. films are not quite as accurate as regards minimal lesions and require enlargement before they can be viewed satisfactorily. When an active or doubtful case is picked up the usual 14 x 17 film is made of the individual. We understand, however, that the U. S. Army has taken priority on all the suitable lenses presently available for this type of work for use in the various army camps.

SURVEYS

Since 1935 we have been making surveys of the chests of the employees of the Johns-Manville plant in Marrero, La., using, however, 14 x 17 films. As you know the Johns-Manville Co. is a manufacturer of asbestos products which have supposedly a silica dust hazard. However, out of 750 examinations we have found only 57 chests which we regarded as pathologic and of these only five were considered pneumoconiotic. This is considerably below the per cent of pneumoconiosis or asbestosis one would expect from similar surveys in other localities. It may be that the high relative humidity of our climate reduces the risk in this section, or possibly the modern safety and protection methods of ventilation are responsible.

We have also surveyed the students at the L. S. U. Medical Center in New Orleans during 1938, 1939, and 1940, raying in all 593. Eighty-six of these showed some pathologic changes in the lungs or heart, most of them only minor variations from the normal. There were, however, seven cases of active tuberculosis detected. Incidentally one student showed large rounded masses in the lungs which we interpreted as metastatic malignancy, as findings were typical. A review of his case with his physician revealed that the condition had existed for several years. Subsequent x-rays covering a period of six months from our initial examination show no change from the original, so our diagnosis of metastatic malignancy has had to be revised. Metastatic malignancy usually increases in size or new lesions develop.

PLANIGRAPH AND BUCKY FILMS

In some hospitals and private laboratories a recent development has been radiographs of the chest taken by means of an apparatus known as the planigraph. By it, x-rays can be made of any given plane in the body. This is an extremely valuable method in certain instances, and is just in its infancy. However, the equipment is expensive and complicated. We feel that in the absence of such equipment we can approach its present accomplishments in many cases by means of films of the chest made with the Bucky diaphragm which is present in every x-ray laboratory. Two recent cases will serve to illustrate: Case 1 on the ordinary x-ray film was diagnosed as pneumonia of the right upper lobe. However, his clinical course did not follow that of pneumonia and a Bucky film was made. Instead of the homogeneous density of a pneumonia consolidation, several cavities were demonstrated and the proper diagnosis of tuberculosis established. Case 2 showed on the ordinary film a large homogeneous increase of density over the left infraclavicular area and a valid interpretation of pneumonia was made. Again, however, the clinical picture did not fit in with this, and a Bucky film was made, demonstrating two large abscesses of the upper lobe.

Bucky films are valuable often in pneumothorax work to demonstrate pleural adhesions, the presence of uncollapsed cavities in the collapsed lung and often to demonstrate the location of the trachea which may be of importance at times. We do not believe sufficient use of Bucky films of the lung is made and urge their application in any doubtful case of apparently homogeneous consolidations of the lungs.

CORRELATION OF X-RAY AND CLINICAL FINDINGS

One point we always like to stress in any x-ray paper is close correlation of x-ray and clinical findings. After all, the radiograph is simply another means of physical examination and repeated examinations may be necessary to arrive at proper diagnosis. If the radiologist feels that it is indicated he should insist on an additional x-ray examination after a sufficient lapse of time. On

the other hand, if the clinician does not believe the radiologist's diagnosis fits the clinical picture we believe he should, after consulting with the radiologist, request another x-ray examination after due time. In many cases the referring physician should consult with the radiologist, look at the films of his patient, and check them with the physical and clinical findings. All will benefit from this procedure, the referring physician, the radiologist and above all the patient.

DISCUSSION

Dr. C. P. Rutledge (Shreveport): I will not attempt to discuss this paper in detail but will discuss just one certain point—the use of the Potter Bucky diaphragm. Drs. Fortier and Gately mentioned the use of the planigraph in making films of the chest at different levels. They also stated that this equipment is not available to many of us on account of its expense. It has been found that the use of Bucky films is, as stated, valuable in certain cases. In many cases where plain films or routine exposures are made, shadows are found with which we are not satisfied. Here the Bucky film can wipe out superficial shadows and help to arrive at a true diagnosis. Along this line it was my good fortune in the last few days to have a most interesting case, and I will show slides of this case.

This patient came to me with gallbladder symptoms. The physician who referred this patient thought that she had gallbladder disease and said that he heard something unusual in the chest. A routine chest film gave the impression of a pericarditis with effusion. When a Bucky film was made the heart shadow could be outlined nicely. There were also some gas shadows in the thoracic cavity and I advised a study of the gastrointestinal tract. In this slide you can see an inverted stomach well up in the chest cavity. This slide shows the gas bubble with a fluid level and the pylorus all above the diaphragm. The next slide is a twenty-four hour study after the barium meal, showing the transverse colon above the diaphragm; and the hepatic flexure occupying an oblique position in the right abdomen. The next slide shows, with the barium enema, the transverse colon well up in the thoracic cavity with evidence of its having passed through a relaxed esophageal hiatus.

I find partial herniation of the stomach through a relaxed hiatus quite often but this is the most extreme case that I have ever seen. It is most unusual for the transverse colon to pass through a relaxed esophageal hiatus.

Dr. Stakely Hatchette (Lake Charles): There is one thing that perhaps Drs. Fortier and Gately and Dr. Rutledge have overlooked in the discussion of making diagnoses of lesions in the chest. I am sure this was not intentional on their part. It is something that I would like to bring out because I think it is of practical value to most of us; that is, the making of views in various positions. In making a diagnosis of lesions of the chest they did not mention the value of the lateral or oblique views.

I would like to re-emphasize the use of the Bucky diaphragm. That has helped out a number of times when it was impossible to get sufficient penetration in the roentgenogram.

Dr. L. A. Fortier (In closing): In a paper to be read in a short time we could not take up all of the well known details of examination. I am glad Dr. Hatchette brought out the oblique position. I thought the Bucky diaphragm important and wanted to stress that in examination of the chest.

RADIATION AND SURGICAL TREATMENT OF MALIGNANCY IN PARANASAL SINUSES*

W. L. ATKINS, M. D.
SHREVEPORT

The subject that I have selected is not a new one by any means, and therefore I am not going to offer an apology. The textbooks offer very little information on this subject. It is my purpose in this paper to review some of the phases of treatment of the tumors of the accessory sinuses.

I do not believe that any part of the body produces as many complicating factors as does the region about the nasal sinuses. The primary site or origin growth of a tumor is often difficult and almost impossible to determine because a blockage of the natural drainage of the sinuses and infection produces an inflammatory condition of the tissue which makes it very hard to differentiate from tumor tissue. Mixed infections often complicate diagnoses.

According to Quick,[1] of Memorial Hospital, the complex embryology of the parts under discussion affords opportunity of tumor origin from many developmental anomalies, hence, a wide range of tumor type is met with. Ewing has enumerated thirty-seven varieties of growth found in or about the paranasal sinuses. The majority of

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these thirty-seven varieties are found in the maxillary antrum. It is impossible to say whether these growths in the antrum are primary or are secondary extension from some of the other nearby sinuses. The inflammatory condition often masks the true diagnosis. My connection with the ear, nose and throat department of the Tumor Clinic has brought me in contact with more tumors involving the antrum than any of the other sinuses. Fabricant[2] states that of 249 cases of malignant tumor of the head, only seven malignant cases of the antrum and one of the frontal sinuses were reported. This report covers a period of seven years of the Research and Educational Hospital in Chicago, where the yearly admission to the nose and throat clinic averages about 2,500.

The maxillary sinus is the most frequently involved, and the ethmoid is the next in order. The sphenoid and frontal are involved by extension, but the involvement of the frontal is rare. The manner of extension is significant. If the tumor originates in the antrum the extension is usually by way of the ethmoid and sphenoid. If the growth originates in the ethmoid it is most likely to extend to the antrum or the sphenoid, almost always ignoring the frontal. It is very fortunate that the maxillary is first involved, as this gives the operator a better point of attack for a radical operation, or an easy approach for the application of radium.

A very large variety of benign and malignant tumors occur in and about the paranasal sinuses; as I have stated above, this variety is due to the complex embryology. The anatomic nature of the sinus favors infection and influences the growth and development of the tumors. While these tumors are not essentially primary in the sinuses, they are, for practical purposes, included in the following classification, according to Bernard Widmann:[3]

Benign Tumors

Polyp
Adenoma
Angioma
Osteoma
Fibroma
Chondroma
Osteochondroma
Giant cell tumors
Dental cysts
Odontoma

Carcinoma

Squamous cell
Basal cell
Transitional cell
Cylindrical cell
Round cell

Benign or Malignant

Dermoid tumors
Teratoma
Plasma-cell tumors

Malignant Tumors

Melanoma
Osteosarcoma
Myxosarcoma
Angiosarcoma
Chondrosarcoma
Fibrosarcoma
Lymphosarcoma
Myeloma

Gordon B. New,[4] of Mayo Clinic, states that it is safe to say that in the last fifteen years there has been no greater advance in treatment of malignant tumors than in treatment of the malignant growth of the upper jaw and sinuses.

DIAGNOSIS

It is very essential to get a positive diagnosis early, if anything like good results are to be expected. When the clinical diagnosis of a malignant neoplasm of the paranasal sinuses and nasal mucosa is possible on the basis of pain and swelling of soft tissues, which may be nodular, hard or soft, the process is undoubtedly advanced and probably beyond benefit of any kind of treatment, except palliative. Roentgen evidence of bone destruction often means an advanced stage of cancer. The majority of early cancers of the nasal accessory sinuses are discovered accidentally at operations for sinusitis.

In all cases of sinusitis where there is inflammation the following symptoms are found: Persistent pain in the face or upper jaw, usually made worse by lying down. This may indicate a malignant tumor of the sinuses. A new growth limited to the nasal cavity, nasal obstruction and hemorrhage are also frequent symptoms. This nasal growth may have the appearance of nasal polyp, yet upon removal, the hemorrhage may be profuse and this is suggestive of cancer. If, after the application of usual methods of treatment, including x-ray, there is still doubt as to the possibility that a malignant tumor is present, exploration of the sinuses should be carried out, so that

a fresh frozen section of the tumor can be examined. Too often we are prone to render palliative and conservative treatment. If we wait until there is a bulging and swelling of the eye, the outcome is self-evident.

The symptoms of the new growths of the antrum depend somewhat on the location of the growth. Tumors originating in the hard palate or superior alveolus are characterized by early swelling. With invasion and destruction of the bone, the teeth will fall out, but very little pain is associated with this. Lesions originating from posterior, superior antral wall are characterized by anesthesia of the cheek wall. These patients often have pain referred to the teeth and probably will see the dentist often. New growths that have their origin in the ethmoidal region may extend into the sphenoidal sinuses, and if the optic nerve is involved, the first symptom will be a diminution of the vision. In taking the biopsy and receiving a positive report from the pathologist, it is much better to render the necessary treatment at this first operation, rather than submit the patient to a second operation, where the sinus shows considerable inflammation and swelling.

Ian G. Robin,[5] of Guy's Hospital in London, states that there is some disadvantage in relying solely on a pathologic report, and Harmer and Cade urge that if the clinical picture indicates malignancy in spite of a negative report, the surgeon should act accordingly or else metastasis will certainly proclaim a diagnosis of hopeless malignancy.

TREATMENT

The treatment of malignancy in the region of the paranasal sinuses, will, of course, vary with the histologic nature of the disease. Those highly cellular, anaplastic, embryonic types of tumors that tend to metastasize so quickly, as a rule, respond very poorly to surgical operations. So it is in these types of tumor that we rely upon the x-ray and radium therapy.

If the age and physical condition of the patient permits, he should be instructed to return regularly for follow-up treatment and for observation, so that improvement or recurrence of the malignancy could be checked. It must not be forgotten that patients with a very high malignant type of tumor which is primary and involving the antrum, have a better chance of recovery than those that have tumor of same size, but of a lower grade of malignancy. The reason for this is that the highly malignant type of tumor can be destroyed by diffuse irradiation, while the tumor of lower grade malignancy must have every particle of tumor removed by surgical diathermy and this is often almost impossible to accomplish. Patients with extensive lesions of the squamous cell epithelioma and those who have sarcoma are subjected to treatment.

There are really only two methods of treatment for malignancy of the sinuses that have proved of any value, and these are surgery and irradiation, or a combination of both. In the tumors that show anaplastic new growths, x-ray or radium can be used alone. In the malignant cases where there is an infection and drainage, surgery is indicated, combined with radium. In patients in whom a surgical operation is indicated and is done, the best method of administering an anesthesia must be chosen. In patients in whom the growth is confined only to the maxillary antrum, and a Caldwell-Luc operation is indicated for the removal of the growth, as well as an approach for the application of radium, the anesthetic I use is the nerve blockage. In instances where there is involvement of several sinuses, also some bone destruction, and where the duration of the procedure may require considerable time, intratracheal gas anesthesia is employed. But, when gas or ether is used do not use diathermy or a cautery, but the knife. When the cautery is used, the anesthesia of choice is sodium pentothal, which is a very satisfactory anesthesia when used in proper hands.

Of the several operations devised for either that is, the removal of the entire tumor tissue, or for making an approach for the application of the radium, adequate exposure should be obtained. According

to New, in the treatment of these tumors, the objective must be complete eradication of the tumor at one time, regardless of the deformity that follows. The loss of an eye, or the perforation of the cheek is of minor importance in cases of this kind, for plastic surgery can be resorted to later.

The operation for nasal lesions that gives the most adequate exposure and that affords complete removal of the new growth is the one devised by Schall,[6] of Boston. This is the operation that I have used in removing the malignant growths. The incision starts opposite the inner canthus and extends down the lateral wall of the nose and around the ala, and is kept as near the fold as possible. The periosteum and soft parts are lifted back from the bone, and the nasal cavity is entered by removing part of the superior maxillary bone and the lateral nasal bone. By extending the incision upwards and removing the lacrimal bone, the frontal sinus can be brought into sight. After removing the new growths, the cavity is lined with vaseline gauze, and the radium is then transplanted. The pack and radium are later removed through the nasal cavity.

The surgical approach to the tumor in the antrum requires still more radical surgery. The incision used by Moure is one I use, which is very similar to the Schall operation, only this incision extends from the ala to the mid-line of the upper lip. It then goes through the tissues, dividing the upper lip, and then through the buccal mucous membrane from the nasal spine to the last molar. The entire soft tissue of the cheek is turned back, exposing the superior maxilla, permitting an inspection of the maxilla, and, if involved, the maxilla can then readily be removed. As I have stated above, bleeding is less if the cautery is used for coagulation of the blood. Some advise ligation of the carotid artery, but I have not found it necessary. The cavity is cleaned out by the coagulation current. Radium is placed in the cavity and removed through the buccal incision. The musculature of the lip is sutured by buried catgut ligatures and the skin is closed by dermal sutures. There will be some odor, but this can be controlled by the use of permanganate sprays 1-5000.

The postoperative care of these patients is very important. The cavity must be kept clean and the patient fed by tube for a few days.

RADIATION THERAPY

The type of radiation therapy advisable in malignancy of the nasopharynx and nasal accessory sinuses varies widely with the location and extent of the pathology and with the radiosensitivity of the tumor. The decision as to whether a cure will be attempted or palliation alone will be used must be determined before treatment is begun. Individualization of treatment is very important for few patients can be treated alike. If best end results are to be obtained, close cooperation between the surgeon and radiotherapist is of paramount importance.

Some anaplastic tumors, lympho-epithelioma and Schneiderian carcinomas, are very radiosensitive and are successfully treated by x-radiation alone. They metastasize early, and the lymph drainage areas should be treated as intensively as the primary lesion, which is often very difficult to locate.

The slower growing carcinomas of the maxillary sinus are usually best treated by a preoperative course of x-ray therapy. Small multiple portals of entry are employed to utilize the crossfire radiation technic and the dosage is fractionated and treatment continued to skin tolerance. Two thousand to 2500 r/air total dosage per port can usually be safely employed. This treatment usually shrinks the tumor mass, and after a period of two or three weeks surgery should be done to facilitate drainage, remove the tumor and all bony extension and make possible the application of intracavity radium packed in place with gauze at the time of operation or applied later embedded in Stent or a Columbia paste mold. Filtration should be 1 mm. of platinum and the dosage should be 3000 to 4000 milligram hours.

Some radiotherapists prefer radon seed implantation at the time of operation and good results are reported, following this

type of therapy. My experience, however, has been limited to the use of platinum capsules since radon is not yet available at the Tumor Clinic.

A combination of surgery and radiation therapy in these cases gives much better end results than either surgery or radiation alone. It is very important that the surgical procedure be radical and the success or failure depends largely upon whether all invaded bone is widely excised, disregarding the importance of the bony structure. Radiation should not be expected to kill epithelial cancer cells which have invaded the bone.

RESULTS

In recent years the death rate has been markedly reduced due chiefly to operative procedures, and more patients are alive without recurrence in five, ten and fifteen years. At the Mayo Clinic, Gordon New reports recent examinations show that patients have been well for fifteen years after they had been treated for malignancy of the paranasal sinuses. In a recent study of 925 cases of malignancy of the antrum and upper jaw with operation performed previous to 1929, 236 persons were traced, of which 127, or 53 per cent were living without recurrence five years later.

Ohngren[7] found that 35 per cent of patients live for more than five years without recurrence.

Harmer[8] is consistent in reporting prognosis only after consideration of the pathology of the growth, and reports as follows: Nearly a third of the carcinoma cases survived two years; half of those with sarcoma live about one year; half of those with endothelioma live for three years.

CONCLUSION

I believe that the consensus is that the outlook is grave in all cases of malignancy of the sinuses even when seen early, but there is some hope of cure. The late cases are almost always hopeless. In the early cases we must have courage and give large radiation doses combined with the surgical procedure where removal, approach, and drainage are indicated, and I am of the opinion that to get best results there must be close cooperation between the surgeon and radiologist.

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DISCUSSION

Dr. L. W. Gorton (Shreveport): The progress of this so-called investigational treatment has increased rapidly in the last decade. A survey of the literature reveals the hard task the radiologist and surgeon have in combating this disease. Being closed cavities, they are almost inaccessible to radiation without injury to the soft parts.

I think a point to be emphasized is an attempt to notice early symptoms, such as unexplained pains, the so-called neuralgias, the toothaches and the bulging of the lateral nasal wall in the nasal chambers, the hemorrhages and the other symptoms that would bespeak a tumor. It is a hard task to differentiate an inflammatory process from a tumor. In most cases where we cannot prove that the lesion is non-malignant and suspect that it might be, although it is a rather radical procedure, it is sometimes justifiable to do a biopsy for certain diagnosis.

The thing that impresses me most is the cooperation between the surgeon and the radiotherapeutist, in that formerly there was some argument between the surgeon and the man who gives the x-ray and radium treatment, where the surgeon provides the necessary portals and drainage and cooperates with the radiologist who can combat the disease more thoroughly with radium and x-ray.

Dr. R. W. Cooper (Shreveport): I agree with Dr. Atkins that in the treatment of malignant tumors of the paranasal sinuses the surgeon and radiologist must cooperate throughout the entire treatment and follow-up examinations if the patient is to receive the best end result.

My remarks will be confined to a discussion of the type of radiation therapy usually employed at the Tumor Clinic of the Shreveport Charity Hospital in the treatment of this disease. This diagram shows the position of the portals of entry in malignancy of the antrum. An anterior 5 or 7 cm. portal and a lateral 7 cm. portal. The x-ray factors used are 200 K. V. P., 70 cm. S. T. D., 0.5 mm. Cu 1 Al

filter. Total preoperative dosage 2000 to 2400 r/air per portal applied in 20 days.

Following a 2-3 weeks' rest period, one of the operative procedures described by Dr. Atkins is done. If the Caldwell-Luc operation is selected, 4-6 1 mm. platinum capsules, each containing 10 milligrams of radium, are packed into the antrum after removal of as much of the tumor as is possible. The total radium dosage is from 3000 to 4000 mgr. hours.

If a more radical surgical procedure is done another rest period is often permitted for primary healing to occur before the application of radium capsules packed in with gauze or applied embedded in a Columbia paste mold through the window in the hard palate.

In intensive radium treatment it is important to place the radium capsules well apart to assure a more homogeneous radiation. We always take x-ray pictures after application to be sure that the radium capsules are well placed.

In the following diagrams other methods of applying radium needles and capsules to the nasal passages and sinuses are shown.

In the less anaplastic malignant tumors of the nasal accessory sinuses the use of both radical surgery and radiation therapy will produce much better results than either method used alone.

Dr. Wallace Brown (Shreveport): Dr. Atkins has discussed the surgical treatment along with postoperative care and radiation therapy. I would like to mention a few points that may be emphasized.

Surgery may be used radically or simply to provide an opening for application of radium, or to remove bulky growths which may then be more readily treated by radiation. Malignancy discovered during sinus operations usually falls into the group of surgical procedures adapted to removing the bulk of the tumor and to providing an opening for the application of radium. The endotherm is extensively used when such procedures are followed. Deep coagulation usually results in extensive bony slough.

In the more radical treatment of paranasal sinus malignancy, an attempt is made to excise widely all diseased tissue. Since most radical surgical procedures are directed at the antrum, because of the frequency of malignancy in this area, particular emphasis should be placed on the surgical removal of the upper jaw. In all patients subjected to such a procedure, a definite histologic diagnosis should be made. X-ray studies should be carefully evaluated before surgery is attempted, since inadequate surgery is followed by prompt recurrence.

The patient's general condition is of major importance as these elderly patients tolerate surgery poorly. If it is possible to promise the patient a satisfactory period free from recurrence, or if this is hoped for, after consideration of the x-ray, extent of disease, and the histologic diagnosis, surgery should be attempted and should be quite radical. While on the other hand, we should not subject an elderly individual to a procedure which, after careful evaluation of the case, would appear to leave the patient with a poorly functioning mouth and a slim chance for recovery.

Finally, it may be said that surgery definitely has a place in the treatment of paranasal sinus malignancy, and in each case considered for the possible use of surgery, the patient should be given the benefit of the doubt.

Dr. W. L. Atkins (In closing): I am rather interested in these cancer conditions. We do not see many in private practice, but do see many of them in the institutions, such as the Tumor Clinics.

I just want to emphasize again the need for cooperation between the radiologist and the surgeon and to say, do not give up hope, but do something for these patients.

Let me stress the importance of making a large approach for the application of radium and drainage of the tumor area. In removing the tumor mass, or making a sufficiently large approach, do not worry about the cosmetic appearance, or the loss of some organ to the patient. The main object is to remove the tumor tissue and then later do the plastic surgery.

CHOLESTEATOMA AND MIDDLE EAR INFECTIONS*

HAROLD LESLIE KEARNEY, M. D.
NEW ORLEANS

In otology, the term cholesteatoma refers to globular masses surrounded by a thin shell of epidermis and connective tissue. The masses themselves are composed of accumulated horny and desquamated epidermis and cholesterin crystals. The presence of cholesterin is purely accidental and owes its existence to the decomposition of organic matter in an atmosphere lacking in oxygen.[4]

TYPES OF CHOLESTEATOMA

According to Wittmaack's[9] classification, there are three types of cholesteatoma, true cholesteatoma, primary or "genuine" cholesteatoma, and secondary cholesteatoma.

True cholesteatoma is an extremely rare tumor in the cranial bones, the result probably of an embryonal rest. Teed, working from the embryologic standpoint, concludes

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that true cholesteatoma of the middle ear and mastoid may result from the anomalous functioning of normally placed epidermal cells.[7]

In primary or "genuine" cholesteatoma, there is an ingrowth of epithelium from Shrapnell's membrane without a pre-existing perforation or otitis media. The starting point is a retraction of Shrapnell's membrane, usually just above and just anterior or posterior to the short process of the malleus.[6] This is the result of negative pressure either in the attic alone as a result of the attic being blocked off by persistent hyperplastic sub-epithelial connective tissue in the epitympanic recess, or by negative pressure in the entire tympanic cavity as the result of prolonged eustachian tube block. This results in the invagination of a portion of Shrapnell's membrane to form eventually a flask-like cavity with a bottle neck toward the external auditory meatus impeding escape of desquamated epithelial cells cast off in the interior of the sac. In these cases, since the pathology is limited to the attic, the modified radical mastoid operation developed by Bondy in 1910 and later by Blackwell in 1912, is applicable. The modified radical mastoid operation is designed particularly to conserve hearing. As pointed out by Bourgeois and Sourdille[1] in France during the first World War, the result of the operation is the healing of the suppuration with conservation of function, a condition essential for guarding the social and military value of the patient.

Secondary cholesteatoma is the invasion of stratified squamous epithelium from the external auditory canal into the spaces of the middle ear through a comparatively large marginal perforation, the result usually of necrotic otitis media arising from scarlet fever or measles. Should surgical intervention become necessary, the classic radical mastoidectomy is indicated in cases of secondary cholesteatoma.

One other type of pseudo-cholesteatoma is that confined to the external auditory meatus. This was first described in 1850 by Toynbee[8] under the title of "Specimen of Molluscum Contagiosum Developed in the External Auditory Meatus." The condition is not molluscum contagiosum, but a result of a chronic desquamative process of the cutaneous lining of the external auditory canal.[3] These dense impacted plugs of lamellated epithelium are not uncommon. They continue to enlarge from the casting off of layer after layer of squamous epithelium from the cutaneous lining of the canal and the eventual pressure from these masses may often cause enlargement of the bony external auditory meatus from atrophy of the bony structures. Simple removal of the masses and occasional observation are the usual methods of treatment.

The existence of a cholesteatoma in the middle ear and mastoid antrum produces an interference with the natural drainage of these structures. Continued enlargement of the cholesteatoma by growth may result in pressure atrophy of bony structures which may result in erosions into the cranial cavity or into the membranous labyrinth. Paralysis of the seventh nerve may result from pressure. One of the accepted methods of sabotage of a steamship with a cargo of soy beans is to let sea water into the hold. The beans expand from the absorption of water, and pressure on the hull of the ship produces leaking which puts the ship out of commission or sinks it. Cholesteatoma also absorb water and swell. Consequently the entrance of water or aqueous solutions into the ear in these conditions is undesirable.

ETIOLOGY

Day,[2] in discussing factors in the formation of cholesteatoma concludes that moisture is the primary and major factor in the development of cholesteatoma. Only anhydrous solutions should be employed in the presence of cholesteatoma. Conservative treatment should be tried only in the absence of symptoms or signs of extension beyond the confines of the middle ear and mastoid. Cures can be obtained only if there is complete epidermization of the walls of the cavity. The presence of moisture will prevent cures and cause recurrences. This is especially true if granulations or an open eustachian tube are present. Conservative treatment is rarely successful with young children because of

tubal secretions. Periodic examinations are important after the ear has become dry. The early recognition and proper treatment of chronic otitic suppuration with cholesteatoma should obviate the need of radical surgery and prevent the serious complications which so commonly occur at present.

TREATMENT

Rejto[5] calls attention to the danger of aqueous therapy for cholesteatoma, and points out that this treatment not only fails to effect a cure, but even promotes further development of the disease and may cause severe destruction and complications. He corroborates Day's experience in obtaining favorable results by syringing with 95 per cent alcohol and with ether. Latterly, Rejto has been syringing the attic alternately with absolute alcohol and with carbon tetrachloride. He favors the latter substance not only because it dissolves the cholesterol crystals, but also their esters. Because in these treatments, carbon tetrachloride is absorbed only in minute quantities, he feels that its toxic influence is of no importance, and no harmful effects have been seen in the few patients in whom the drug made its way into the pharynx by way of the eustachian tube.

CASE REPORT

Mr. A. B., aged 34, was first seen August 11, 1938. His chief symptom was headache. Examination at that time showed a chronic purulent middle ear infection on the left side. There was a small antero-superior perforation of the left drum with a small protruding polypus and underlying cholesteatoma. The right ear showed a large postero-superior perforation of the drum and a dry cholesteatoma. There was almost immediate cessation of headache after removal of as much cholesteatomatous material as could be removed through the perforations of the drums. He was kept under treatment for 15 months and at the end of this period, he felt so well that he discontinued treatment. In January, 1941 he developed marked vertigo with a tendency to fall to the right. Examination at this time showed a cholesteatomatous mass occluding the perforation in the left drum. There was a positive fistula test as evidenced by vertigo produced by manipulation of the cholesteatoma. Neurologic examination, including spinal fluid, was negative. Blood and spinal Wassermann tests were negative. General physical examination was negative except for arthritis in the right hip. On January 10, 1941, left radical mastoidectomy was done, using the endaural approach. Operative details from his hospital record are as follows:

Endaural exposure of the mastoid cortex was done. This mastoid antrum was entered with a serrated burr driven through Macewen's triangle. The opening was enlarged and the cortex removed with round cutting burrs. The external bony wall of the epitympanic space was removed with curettes and the posterior bony wall of the external auditory canal was removed down to the fallopian canal (which was not opened) with curettes. The bridge of the annulus was removed with small rongeur forceps. The remains of the ear drum were removed. These procedures had uncovered a large cholesteatomatous mass filling the middle ear space, the epitympanic space, the aditus ad antrum, and the mastoid antrum. This mass was lifted out of its bony cavity intact and measured approximately one inch in length by about one-half inch in its greatest diameter. On removing

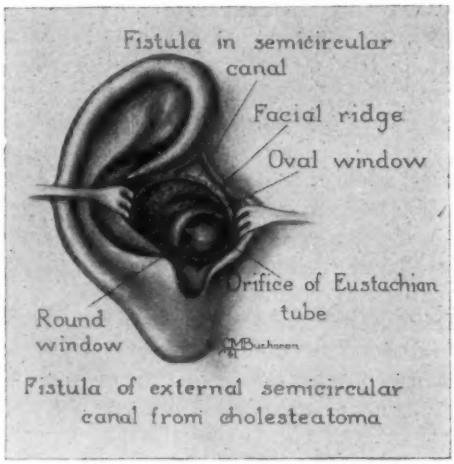

FIGURE 1

the mass, a fistula was disclosed on the convex surface of the external semi-circular canal near its ampullar end. The fistula was not disturbed. The cholesteatoma had destroyed the processus cochleariformis together with much of the tensor tympani muscle. The tegmen was intact throughout, careful search with a probe revealing no opening into the cranial cavity. The remnants of the ossicles had been lifted out imbedded in the cholesteatomatous mass. The orifice of the eustachian tube was curretted, granulations removed from the middle ear, and the hypotympanic space obliterated by lowering the bony floor of the external bony meatus. Mastoid dressing was applied.

Audiogram done March 17, 1941, showed improvement in hearing in the operated ear as compared with audiogram done four days prior to operation.

At his last visit in April 1941, the middle ear and mastoid were dry and completely epithelialized.

SUMMARY

The types, etiology and treatment of cholesteatoma have been discussed, plus the presentation of a case report.

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CEREBROSPINAL RHINORRHEA*

PHANOR L. PEROT, M. D.
MONROE

The spontaneous escape of cerebrospinal fluid from the nose has been described in severe head and nose injuries, in complications of intracranial surgery, nasal infections, congenital anomalies, meningitides, and brain tumors. Brain tumors apparently are the most frequent cause of cerebrospinal rhinorrhea.

HISTORICAL DATA

Charles Miller,[1] in 1826, described the first definite case of cerebrospinal rhinorrhea in a boy with chronic hydrocephalus. A description of a clear nasal discharge probably of cerebrospinal origin is found in the writings of both Willis,[2] in 1676, and Morgagni,[3] in 1762. In 1877 Tillaux[4] reported a case that was first to be verified by chemical examination of the fluid. There was a valuable contribution by Sir St. Clair Thomson,[5] in 1899, who recorded 21 cases and one of his own. During the next quarter century 20 more cases were reported. These were summarized by Johnson,[6] when he recorded his case in 1926. Joseph C. Donnelly,[9] in a review of the literature up to 1931, showed 27 more cases which brought the total number, spontaneous and traumatic, to 69, and reported two more. Fox has also reported an additional case, as well as Weil and Womack, and Shea has also added another three.

ETIOLOGY

Among the known causes of a communication between the cerebrospinal fluid system and the nasal cavity are bony defects in: (1) The walls of the frontal sinus; (2) cribriform plate of the ethmoid, or rarely (3) the sphenoid sinus.

The most exact knowledge as to the cause of spontaneous cerebrospinal rhinorrhea has been contributed by Locke,[7] who, in 1926, searched the literature and found 14 cases in which necropsy had been performed. In 12 cases internal hydrocephalus was found. Eight of the 12 cases showed a cerebral tumor producing an obstruction to the ventricular system and found unmistakable openings connecting the floor of the anterior cranial fossae with the nasal cavity.

John Shea,[8] has recently presented a case autopsy report of a pituitary tumor with an opening into the sphenoid sinus.

Locke showed that when colloidin masses were injected under pressure into the subarachnoid spaces of the dog, they frequently leaked from the nose. His belief was that the dura overlying the cribriform region was especially susceptible to penetration because of the tiny holes that are normally present for the exit of the olfactory nerves; furthermore, the arachnoid membrane and the subarachnoid spaces continue for a distance along these nerves.

DIAGNOSIS

The escape of the cerebrospinal fluid is confined to one side of the nose and continues without intermission both day and night, flows more freely when head is in-

*Read before the sixty-second annual meeting of the Louisiana State Medical Society, Shreveport, April 23, 1941.

clined forward. If collected and examined, the fluid is found to be perfectly clear and transparent and free from albumin and mucin, but it is capable of reducing Fehling's solution. The fluid does not stain the handkerchief or stiffen it. Amount discharged in 24 hours varies from 50 to 1000 c.c. and shows no variation from the fluid obtained by spinal puncture. Fluorescin may be injected into the spinal canal and recovered from the nose. These characteristics suffice to distinguish cerebrospinal rhinorrhea from other types of rhinorrhea in which the fluid will be opalescent, and will contain albumin and mucin and will not contain glucose. Moreover, in hay fever and vasomotor rhinorrhea the fluid flows from both nostrils and usually during the day only.

Schwab and Green, in common with the other writers, pointed out the fact that optic neuritis is usually associated with cerebrospinal rhinorrhea.

TREATMENT

The only rational form of treatment for this condition is one directed toward the relief of the obstruction of the cerebrospinal fluid pathways. Should there be localized signs of an accessible intracranial tumor, its removal should be attempted. However, too great an operative risk should not be taken, as some patients with rhinorrhea and brain tumor have lived for many years, the cerebrospinal fluid leak acting as an effective decompression.

Wurster,[11] reported an unusual patient who had two submucous resections, turbinectomy, cauterization, tampons and violet ray. Noah Fox,[12] reports a case where the nose was swabbed six times with 20 per cent silver nitrate causing a fibrous band of adhesions and the flow stopped. J. R. Learmonth,[10] reports operation of turning back a flap, exposing the cribriform plate and inserting iodine packs with a cure resulting.

The patient should be warned to: Avoid acute colds, blowing the nose or sneezing, nasal douches; rest in bed and isolation from any possible contact of infection.

CASE REPORT

A married woman, aged 39, was first seen on March 17, 1937, because of a persistent discharge of watery fluid from the left nostril. Frontal headaches began six years previously and became severe with periods of convulsions and unconsciousness. There was no disturbance of vision.

In 1934 she noticed a watery discharge of fluid from the left nostril, almost a constant drip and worse when leaning forward. This was continuous day and night. She estimated the amount in 24 hours to be about a teacup full.

The examination of the nose showed a septal ridge on right side; on the left side, moisture was noted between middle turbinate and septum. With head inclined forward, a constant drip of clear watery solution from left nostril was collected. Throat presented sclerotic tonsils. Transillumination of antra and frontal sinuses was clear.

Vision 20/20 in both eyes; pupil reaction normal; slight pallor of right disk; visual fields were normal. The blood pressure was 110/70.

Pathologic report of fluid: clear; two to five cells (lymphocytes); sugar present; globulin not increased; chlorides present; Kahn test negative. The blood Kahn test was negative.

X-ray of skull: Postero-anterior and lateral films of the skull; right side of the film shows a large diffuse collection of poorly calcified material, lying in the anterior cranial fossa slightly above the level of the roof of the orbit. The postero-anterior film shows this calcified area to lie definitely on the right side. Despite the somewhat high position of the tumor, and its location to the right of the midline there is complete destruction of the dorsum sellae and the posterior clinoid processes. The roof of the sphenoid antrum is depressed to the level of the floor and the antrum completely obliterated. Diffuse, spotty rarefaction is noted in the squama of the frontal bone. Final conclusions from x-ray findings: Brain tumor, right frontal lobe.

This patient was seen by Dr. Ernest Sachs in 1937 who offered to operate if she would come to St. Louis. This she refused.

On February 12, 1941, a report and specimen of fluid was obtained. Patient still complains of headaches relieved by aspirin. Vision good. There is a constant dripping of fluid from left side day and night, which does not stiffen or stain her handkerchief. She has fainting and nervous spells, is easily fatigued, otherwise is up and goes about her house duties.

SUMMARY

A case of cerebrospinal rhinorrhea, secondary to a probable brain tumor of the right frontal lobe, is reported.

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THE EYE AND EAR IN AVIATION*

DORF BEAN, M. D.
SHREVEPORT

In this paper I shall discuss those individuals whose pleasure or occupation is flying airplanes. In other words, airplane pilots; with one exception, where brief reference will be made about unfavorable reactions to the ears of passengers in planes where too rapid change in altitude is made.

No doubt, many will ask the question why discuss the eye and ear in aviation before this state medical meeting? There are several reasons for such a paper at this time: First, quite a few of the members of this Society are authorized medical examiners of airplane pilots for the United States Department of Commerce and the Civil Aeronautics Department of Commerce and the Civil Aeronautics Authority; second, aviation is the subject of world-wide discussion at present and the younger generation is very much air-minded. I believe practically all the high school boys in this State would take up flying tomorrow if they had such an opportunity; third, this nation must, for its own safety, maintain a force of more than one hundred thousand pilots, and first line pilots at that, ready for any emergency. Young pilots must replace the older ones yearly, for flying is truly a young man's game.

In aviation, as in no other occupation or industrial activity, perfect eye sight or normal vision is essential for the highest efficiency and safety.

Man is blessed with binocular single vision, that is, he can tell not only the direction of an object, but fairly accurately its distance by the use of both eyes pointing at the same object at the same time, like two range finders. The outside limit of vision of man is greater than half of the space in which he is placed, and his eyes can move accurately with the greatest precision to any object in any part of his field of vision, and such movements may be aided by movements of the head and body. He sees distinctly only that at which he directly looks. Peripheral vision assists him in discovering moving or other objects to which, if he wishes, he may direct his gaze. Two seeing eyes are mandatory in an airplane pilot with very few exceptions; where an old experienced pilot has lost one eye, he may be permitted to fly after the accident.

EYE EXAMINATION FOR PILOTS

The examination of an airplane pilot's eyes is the first and most important step in his or her physical examination, and is divided into several different procedures.

First, visual acuity, using eye chart at a distance of twenty feet and examining each eye separately, having other eye closed or covered with fairly large opaque card and not by the hand or some small object. The applicant must not be allowed to squint, but must keep eyes open in normal position. It is surprising how a myopic individual or nearsighted person can improve his distant vision by forceful squinting, thus giving an inaccurate visual finding. If one eye is suspected of being worse than the other, then it should be tested first.

Second step in the eye examination is depth perception. In this test the Howard-Dolman depth perception apparatus is used. It is a rectangular box-like apparatus, approximately forty inches by twelve inches and twelve inches deep, with an open top

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and sides, and has two black metal rods; one rod being stationary, the other moved by a cord at a distance of twenty feet with a plain white field as a background. The accuracy with which the pilot approximates the rods is an excellent check up on his or her ability to judge distance in landing and taking off in an airplane. However, I have in mind one experienced pilot, with over five thousand hours' flying time and sixteen years of flying, who never makes a good showing with the depth perception test. It may be he does not take much stock in such a test or does not try to do his best. Yet, this test has been proved to be an important step in the examination of flyers.

Third, the ocular muscle balance test is given to find if diplopia or hyperphoria is present, and if abduction (prism divergence base in) and adduction (prism convergence base out) esophoria and exophoria are within normal limits. These findings are very important and diplopia to any marked degree disqualifies; in fact diplopia disqualifies unless it develops in the extreme limits of the visual field. Hyperphoria of over one diopter restricts the pilot to a non-commercial flying status.

The few persons I have found with hyperphoria to any marked degree, have all given the same general history of a severe blow on the head and showed scars as evidence of the injury. One young commercial pilot fell from an automobile and suffered a serious head injury and concussion; months after his recovery he had such a marked hyperphoria that he was advised to quit flying. Another youth failed to get into the Civilian Pilot Training because of hyperphoria and the scar on frontal bone area, caused by a fall from a bale of cotton several years prior to examination; this was the only known cause of his abnormality.

Fourth, the accommodation or near vision is tested and here the young individual passes for the higher rating, but the older pilot, approximately forty-five years of age, in most cases fails to read the small test letters and has to qualify as a non-commercial pilot, the commercial pilot being the higher rating. The natural question arises as to why penalize the older person for presbyopia when reading glasses will correct this condition. The answer is simple; when the eye reaches this stage in life the reaction time of changing from near to distant vision is slowed up, and in fast airplanes of today and certainly in the combat military planes where the landing speed is high and flying speed is terrific, the presbyopic eye can not read the instruments on the nearby instrument panel and at the same time take care of the distant objects and landmarks that are flashing by. This is where split second timing is not only essential but vital, and the older individuals' eyes can not make the grade.

I have in my files the record of a man past fifty who first flew an airplane when he was over fifty years of age, and while he had a non-commercial or private pilot's license, he was considered a good pilot. However, he and a member of his family crashed and were killed when flying through a rain storm. The crash might have occurred even with the best qualified young commercial pilot at the controls, yet one can not forget that pilot failure rather than plane failure seems more likely.

Fifth, the visual fields are tested by simple finger and fixation method, unless some apparent blind spot is suspected, then the perimeter is used.

Sixth, the central color vision is tested, using Stillings or Ishihara tests, these two being pseudo-chromatic plates; these two tests are very delicate or difficult to pass if there is a slight color vision defect, and where some of the numbers are missed, the Holmgren's test (colored yarns) is used. If all colors are matched correctly a normal color vision is recorded. An airplane pilot must be able to detect colored navigation lights, airdrome lights, colored signal panels and be able to read maps printed in colors, and know shades of green and brown on the ground that indicate the kind of territory over which he or she is flying and which helps in locating an emergency landing field, should the occasion arise.

Some recent tests have been made on the ability of color defective persons to detect

hidden and camouflaged planes and other equipment from airplane observation posts. And I understand the observers with color vision defects were better able to find the camouflaged planes and other objects than those with perfectly normal color vision. If this is true, then there is very urgent need for color blind or color vision defective observers for more efficient airplane observation.

Seventh, the eyes must be of normal size, and pupillary reaction to light and accommodation must be normal. The ophthalmoscopic examination must show normal media, disk, blood vessels and retinae.

This brief and rather rapid summary of the eye requirements may seem too strict or too difficult for many applicants to pass; however, remember the qualifications above mentioned are for the commercial pilots of the highest standing, and there are modifications for the commercial grades also. Recent regulations permit the issuance of a commercial rating to pilots whose vision is 20/50 or better in each eye and whose vision is brought up to normal or 20/20 in each eye by use of correcting lenses.

REQUIREMENTS FOR OTHER FLYERS

The requirements for the non-commercial or private flyer are much less exacting. The vision of the private pilot may be twenty two hundredths (20/200) or even less, providing correcting glasses bring the vision to twenty thirty (20/30) in each eye. Then he or she can be given a private pilots license rating with the notation on the certificate that correcting lenses must be worn by holder when operating aircraft; this same notation is placed on the commercial pilots license where glasses are necessary for normal vision. Over ninety-five per cent of all applicants with poor vision that I have examined have been myopes and glasses have made these people see normally in practically every instance.

If the pilot should lose or break his or her glasses while in flight, then the chance of making a safe landing would be very much less than under normal conditions. The fact is that most planes are made with much better protection for the pilot and many planes made now are closed models which makes the pilot wearing glasses much less likely to suffer an accident to correcting lenses while in flight. It is considered safer and better to wear metal frame correcting lenses beneath plain protective goggles instead of using specially ground goggle lenses. The fact that an individual has become accustomed to the glasses worn, their size, shape and weight makes it better and more comfortable to use regular spectacles and goggles over them.

In the muscle balance test the applicant having more than one diopter of hyperphoria can not be qualified as a commercial pilot, but hyperphoria does not disqualify for non-commercial or private grades. Color blindness is not a disqualifying factor for the private pilot.

The presence of nystagmus or strabismus, or ocular diseases or abnormalities, disqualify for all grades of airplane pilot licenses.

Some rather interesting work on intraocular pressure at high altitudes by Pinson and Armstrong has been done to see just what takes place under such conditions. The tests were made on rabbits' eyes and the needle was introduced into the vitreous humor and connected up with the manometer. The live animal and manometer were placed in low pressure chamber, where various rates of pressure changes up to an altitude of forty thousand feet were made. The results of these tests showed even the most extreme barometric pressure changes caused no significant increase in the intraocular pressure at any time.

EAR CONDITIONS

The ear, while important in aviation, as in other occupational activities, is more briefly considered.

The importance of hearing distinctly is more essential for the airplane pilot of today than in the past, because of the practically universal use of radio in the planes in use now. The ability to hear normal conversation or other noises in every day activities may be very much below normal, yet the same ear can hear by radio and ear

contact head sets practically normally in many instances. Perhaps the rather low whispered voice test required for commercial pilots is made with the knowledge of the use of head sets and radio communication.

In commercial pilots the whispered voice must be heard at a distance of eight or more feet, while the private pilot is required to hear the whispered voice three feet or more. In the civilian pilot training course the hearing must be perfect, that is the whispered voice must be heard distinctly at twenty or more feet.

Pilots are subject to two quite different types of deafness. First, deafness due to rupture of ear drum, most often caused by too rapid descent, directly due to unequal barometric pressure on either side of the tympanic membrane, and often associated with obstruction of the eustachian tube. Second, the deafness due to motor noises; this is usually temporary and lasts only a few hours after a flight. The sound proofed cabin type of planes now in use, especially the airliners, rarely causes any degree of hearing defect from motor noise.

The external ear canal must be normally open and the ear drum must be intact. Large perforations or destruction of the ear drum and chronic middle ear infection or history of radical mastoid operation disqualify for all grades of pilots. The eustachion tubes must be open and free from any serious infection, or any abnormality causing blocking of tubes.

Pain in the ears as a result of changes in altitude during aircraft flight has been one of the more common complaints of airplane pilots and passengers for some time. The equalization of pressure between the middle ear cavity and the outside atmospheric air is effected by means of the eustachian tube which extends from the tympanic cavity to the nasopharynx. The act of swallowing or yawning opens the eustachian tube and permits equalization of the air pressure in middle ear and outside.

The ability of an individual to clear the ears or equalize the pressure between the middle ear and outside depends to a marked extent on his or her degree of freedom from pain or discomfort during changes of atmospheric pressure. These changes occur frequently and often rapidly in commercial and particularly in military airplanes.

The use of helium-oxygen mixtures for rapid and satisfactory decompression of divers has been proved and is used by many private divers and also by Navy under-sea workers. The inert nature of helium and its rapid rate of diffusion as compared to nitrogen seemed to make helium-oxygen an ideal gas for experimental purposes in painful ear symptom research.

Fifty experiments upon twenty human subjects were performed. All tests were made in a low pressure chamber. Helium, 80 per cent, and oxygen, 20 per cent, was the gas mixture used.

The results showed very slight decrease in painful ear symptoms as compared to normal air mixtures. The conclusion was reached that the use of helium-oxygen mixture was not practical and did not prevent painful ear symptoms to any marked extent.

SUMMARY

In this brief paper I have tried to avoid details and yet describe some of the more interesting eye and ear conditions and requirements as related to aviation.

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DISCUSSION

Dr. Charles A. Bahn (New Orleans): Very few in this audience have ever been aviators, are aviators, or ever will be aviators. You are, however, the medical advisers in thousands of families

whose young men want to be aviators. They will depend largely upon your advice. From a calendar, test chart, or magazine, place one or more half inch letters twenty feet from the prospective aviator; either he can or cannot call those letters with each eye separately and without glasses. If he cannot call those letters, tell him sincerely and forcibly that aviation is not for him. Obviously the letters should be on reasonably clean paper and reasonably well lighted. If the aspiring aviator cannot pass this simple test he is practically barred from becoming a commercial aviator or joining the Army Air Corps. In other words, he cannot get past first base in aviation. If that young man does not take your advice, he is sure to buy expensive, painful, and possibly fatal experience. At least, you will have done your duty.

The technical side of visual aviation tests, Dr. Bean has ably presented. For most of you they are, however, but of passing interest.

As general physicians and leaders in your community leave the technical side of aviation to technical experts. More important, do your share in preventing many young men who are unfit from trying to become aviators. Those who cannot recognize a half inch letter distinctly at twenty feet in a reasonably good light should avoid aviation. There are many things in which they may succeed, but they can only fail in aviation.

Dr. DeWitt Boaz (Shreveport): I have not had experience in handling aviation cases, in injuries following the profession and very little experience in examination for pilot licenses. Dr. Bean has had the opportunity for several years to examine these persons and I think he has covered the subject splendidly.

Dr. Dorf Bean (In closing): I think Dr. Bahn is correct in respect to the fact that most physicians have overlooked the fact that there is quite a field for pilots; not necessarily commercial pilots. There are many aviators in the United States who are not commercial operators. Many boys want to fly for the fun of the thing.

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INJURIES ABOUT THE WRIST-JOINT*

G. C. BATTALORA, M. D.
NEW ORLEANS

In selecting this subject for discussion it was with no intention of covering all of the injuries but to dwell simply on certain of the injuries that are not so very well understood. The conditions that will be considered are: (1) Colles' fractures; (2) fractures of the carpal scaphoid; (3) dislocations of the carpal semilunar bone; and (4) perilunar dislocations.

COLLES' FRACTURES

You may wonder why this topic, that has seemingly been so well considered in the literature, should be discussed. Those of you who treat any number of these fractures have undoubtedly found that a large percentage of the cases result in some percentage of permanent disability.

Colles' fractures are fractures of the lower inch of the radius due to a hyperextension type of injury. The mechanism of the fracture is a complicated one. When an individual falls it is instinctive to throw out his hands to break the force of the fall. At the moment of impact the hand is held in pronation, a certain amount of extension, and also in a certain amount of abduction or adduction. As the force continues, the extension of the wrist increases until the lower end of the radius breaks off. At this point the inferior radio-ulnar joint is still intact. Further increase of force may then cause derangement of this joint with an aggravation of the displacement of the lower end of the radius. As the distal radial fragment displaces backward, it may be forced around into supination. This is particularly true if the inferior radio-ulnar joint is intact. The attachment of the triangular ligament to the base of the ulnar styloid acts as a fulcrum for this movement. A further change that usually results is radial displacement of the hand. Any of these forces may preponderate, causing an aggravation of certain phases of the deformity.

Taylor and Parson give an excellent classification of Colles' fractures, as follows:

1. Fractures with the triangular ligament intact.
2. Fractures with loss of integrity of the inferior radio-ulnar joint.
   a. With rupture of the ligament itself.
   b. With avulsion of the ulnar styloid at its base.
   c. With severe comminution of the lower end of the radius with the ligament remaining attached to a minor medial fragment.

*Read before the sixty-second annual meeting of the Louisiana State Medical Society, Shreveport, April 23, 1941.

In this classification it is apparent that the important fact is to ascertain the patency of the inferior radio-ulnar joint. The prognosis in the case depends to a great extent on this.

In the first group of cases the typical deformity is a backward tilt of the distal fragment or a backward tilt plus a supination twist. With the triangular ligament intact it is impossible to get a great deal of posterior displacement of the distal fragment. The displacement shown on the x-ray is not an actual posterior displacement but a twisting into supination of the distal fragment. This portion of the deformity may reduplicate itself in the plaster cast and is one of the most potent causes for poor results.

In the second group of cases the deformity is more severe. Any degree of comminution may be present with marked posterior and lateral displacement of the distal fragments. One must realize that there is also a break in the ligamentous apparatus between the distal ends of the radius and ulna, and if accurate reduction is not obtained, healing will occur with some derangement of this joint.

In the first group of cases manipulation is quite simple, since there is a fulcrum to lever the lower radial fragment into position. In simple posterior angulation, traction plus direct forward pressure over the distal fragment will produce reduction. Where there is a supination twist, the forearm and hand should be rotated into strong pronation, while traction is applied to the hand and the distal fragment forced into position by forward pressure, plus ulnar deviation of the hand. In the first mentioned cases the cast or splints need extend no farther than to just below the elbow. In the latter cases the support must need extend to the middle of the arm with the elbow held at a right angle. The forearm is held in strong pronation, and the hand is held in ulnar deviation with a moderate degree of flexion of the wrist. This cast is allowed to remain on for three weeks and the position then changed to a more neutral one. The usual period of fixation is about six weeks.

In the severe type of Colles' fracture the reduction is more difficult. It must be attempted in two phases. Strong traction is applied to the hand. The first phase of the reduction will then consist in correcting the posterior displacement. This is done by direct force applied to the back of the distal fragment, pushing it forward. It is impossible to overcorrect this element of the deformity, and strong pressure must be used. The second phase is then to correct the radial deviation or displacement. Flexion of the wrist is continued, the forearm is rotated into pronation, and the hand levered toward the ulnar side. Strong lateral pressure is then applied to the distal fragment, while counter-pressure is applied to the proximal one. A well molded cast is applied, holding the wrist in strong flexion and ulnar deviation with the forearm pronated and the elbow at a right angle. This cast is changed in a period of about ten days and the flexion of the wrist is relieved, but the ulnar deviation should be maintained throughout the period of fixation. The period of immobilization varies from six to eight weeks.

Several points should be brought out that are frequently neglected during the period of immobilization. First, the cast should extend distally no farther than the metacarpo-phalangeal joints of the fingers. This point corresponds to the distal palmar crease. If these joints are covered, motion will be impaired. As soon as the patient reacts from the anesthetic he should begin motion of the fingers. This should be carried out in a slow and forceful manner and not by the twiddling of the fingers that most patients consider exercising them.

FRACTURES OF THE SCAPHOID

In all wrist injuries that present tenderness over the radial side of the joint, fracture of the scaphoid bone should be suspected. This is particularly true if the tenderness is localized over the anatomic snuffbox space. The injury may not be considered severe but if it is a fracture of the scaphoid and it goes undiagnosed, a permanent impairment of the function of the wrist joint may result.

The diagnosis can only be definitely made by the x-ray. At times this method may leave one in doubt. A patient may have a fracture line so indistinct as to be hardly distinguishable from the bony trabeculae. If any doubt exists it is far better to treat the patient as for a fracture and then repeat the x-ray examination at an interval of two weeks. At this time the indefinite crack will now have become very distinct due to calcium absorption along the fracture line.

An x-ray examination made in an antero-posterior and lateral plane will frequently miss these lesions. An oblique view of the wrist is essential. This fracture is not infrequently associated with Colles' fracture. The oblique view brings out the full length shadow of the bone. It is always desirable to take views of both hands for comparison.

Three sites of fracture of the scaphoid are seen—through the tubercle, the wrist, and the proximal pole. Fractures through the waist are the most common and the ones that give most trouble. In these fractures the blood supply of the proximal fragment is often inadequate and aseptic necrosis of this fragment may occur. Any motion at the site of fracture will further impair this blood supply.

There is usually very little displacement in these fractures and reduction can be obtained by simply putting the hand in radial deviation, plus slight extension. A circular plaster cast, well molded, should be applied from the distal palmar crease to just below the elbow joint, and should also include the proximal phalanx of the abducted thumb. This type of splint should be allowed to remain on until there is x-ray evidence of firm union. It is impossible to prognosticate at the beginning how long this will take; therefore it is unwise to tell the patient how long he will have to be kept in a plaster cast. Some patients' bones will unite within six weeks, while some are still not united at six months. Occasionally it may require one year for complete consolidation.

If a patient has received adequate fixation for six months and there is still no attempt at repair, operative intervention should be considered. The ideal method is to drill across the fracture site and then insert a small autogenous bone peg. This method is superior to simple drilling.

In patients presenting evidence of aseptic necrosis, the drilling operation may be tried, or, as advocated by Watson-Jones, the necrotic fragments should be removed. The danger from this condition is in the development of traumatic arthritis of the wrist-joint. When this occurs, no treatment is satisfactory except fusion of the wrist-joint.

DISLOCATIONS OF THE CARPAL SEMILUNAR BONE

Anterior dislocation of the semilunar bone results from falls on the outstretched hand. As the hand is forced backwards into hyperextension the capitate approximates the posterior edge of the radius, the posterior ligament of the joint is torn, and the bone is squeezed forward. As the semilunar is displaced forward it rotates so that its distal surface presents anteriorly. The bone then comes to lie directly behind the flexor tendons and may press on the median nerve. There is abnormal fullness in the front of the wrist and flexion is markedly limited.

The antero-posterior x-ray view shows the bone as triangular in shape in contrast to the normal quadrilateral shape. The lateral view clearly demonstrates the dislocation.

Closed reduction of the dislocation should be practiced. Watson-Jones has demonstrated that the dislocation can be reduced up to one week following injury. Reduction is accomplished by making strong traction on the hand with the wrist in extension. This opens the space between the capitate and the radius. While pressure is made over the semilunar anteriorly with the thumb, and maintaining traction, the hand is brought forward into flexion, causing the displaced bone to slip backwards into position. The hand and forearm are put up in a cast with the wrist in slight flexion for one week. This cast is then changed and the wrist placed in a neutral position for two weeks longer. The average disability period is about six weeks. Excision of the bone should be reserved only for old unreduced cases.

PERILUNAR DISLOCATIONS OF THE CARPUS

This condition is often mistaken in diagnosis. It is caused by a fall on the outstretched hand. As the hand goes into extension, the capitate slips behind the semilunar, carrying with it the bones of the distal row of the carpus and the other bones of the proximal row. The dislocation may not be a simple one, but may involve fracture of one or more of the proximal carpal bones. The most common type of the injury is a trans-scaphoid perilunar dislocation.

The deformity is similar to the silver fork deformity, but if examined closely it is found to be quite a bit distal to the usual site of deformity in a Colles' fracture. There is tenderness across the wrist, more especially on the radial side. Motion of the wrist is painful and swelling occurs early.

The antero-posterior x-ray may be very hard to interpret, owing to the overlapping of the capitate and semilunar. The lateral view, however, is quite characteristic. The semilunar is found to articulate normally with the radius but the capitate is found to be dislocated behind the semilunar bone. I have found this condition to be diagnosed as a dislocation of the semilunar bone, where in fact the semilunar is the only bone in the hand that is not displaced.

Treatment is quite simple. Prolonged longitudinal traction on the hand will open up enough space between the dislocated bones so that forward pressure over the capitate, plus support over the anterior surface of the semilunar will result in reduction. One of my patients was reduced in this manner one week after injury.

Following reduction a splint should be applied, holding the wrist in flexion for about one week. This is then changed, with the wrist being put in a more neutral position, for two weeks. If there is any associated fracture, such as fracture of the scaphoid, the patient should then be treated for this fracture.

SUMMARY

In the time allotted for this presentation it is realized that much valuable data have been omitted, but the matter covered presents most of the newer concepts of the subject. In the handling of any of the injuries about the wrist joint the important factors are: (1) Careful diagnosis; (2) early accurate reduction; (3) adequate immobilization, and (4) proper mobilization of the exposed joints during the period of fixation.

DISCUSSION

Dr. A. Scott Hamilton (Monroe): For several years a controversy raged as to the best position for immobilization of the wrist following Colles' fracture. With the exception of the Smith variant of this type of fracture, it is generally conceded at the present that the Cotton-Loder position will, if used judiciously, yield the best functional end result. By that I do not mean to imply that the use of this position automatically guarantees restitution of pretraumatic mobility. The position does, however, form the primary basis of therapy. As has been recently emphasized by Taylor and Parsons, the Cotton-Loder position restores anatomic integrity in that it permits reapproximation of the discus articularis, it locks the head of the ulna under the hamate, forcing it into the normal dorsal position, it forces the radially displaced distal radial fragment ulnarward, and, finally it serves to approximate firmly the lower radius and ulna.

The controversy concerning position of immobilization in fractures of the carpal navicular has largely been settled. Kellog Speed (1925), Bohler (1929), Destot (1926), Berlin (1929) and Soto-Hall (1928) have described positions claimed to give maximum healing. The latter two have stood the test of time and are now generally used. These positions are wrist extension with radial deviation, the latter being particularly emphasized by Soto-Hall. Non-union follows this type of fracture frequently enough that every attempt should be made to secure the maximum of reduction in each case and fixation should be maintained until definite evidence of restoration of bony continuity is present in the x-ray film.

Dr. H. Theodore Simon (New Orleans: When anyone discusses carpal-lunate dislocations, I am interested. It is surprising when checking over compensation cases to find that because of lack of motion, diagnosis of arthritis in the wrist-joint is frequently made, when the true condition is a dislocation of the lunate undiagnosed because of lack of proper x-rays.

SODIUM PERBORATE THERAPY IN *TRICHOMONAS VAGINALIS* VAGINITIS*

FURTHER OBSERVATIONS

EARL CONWAY SMITH, M. D.†
NEW ORLEANS

In 1939 I presented before the Orleans Parish Medical Society a plan of treatment of *Trichomonas vaginalis* vaginitis by sodium perborate, and reported its successful use in 14 patients.[1] At this time I am describing the same plan, with some slight modifications of the original method, and am adding to the 14 successful cases already on record 22 others, thus bringing to 36 the number of patients whom I have personally treated by this means.

DIAGNOSIS

The diagnosis of vaginal trichomoniasis can be made definitely only by the use of the microscope. A drop of the vaginal discharge is secured from the posterior vaginal fornix by the use of a sterile pipette or platinum loop. The material is placed on a glass slide, diluted with warm tap water or warm saline solution, covered with a cover glass, and examined immediately under the low and high power lens. If trichomoniasis is present, actively motile trichomonads are always demonstrated at once in great numbers.

Although the diagnosis cannot be made on clinical symptoms and signs alone, without microscopic confirmation, acute *Trichomonas vaginalis* vaginitis should be suspected whenever the patient complains of or examination reveals: Leukorrhea, which is always profuse or malodorous, which is creamy or greenish-yellow in color, and which may contain many air bubbles; pruritus vulvae; hyperemia and tenderness of the vaginal mucous membrane, with typical small petechial hemorrhages, which are more marked on or around the cervix; vaginal pain, especially during and after intercourse; scalds or burns on the vulva and the upper inner aspect of the thighs.

Although profuse leukorrhea is the only symptom of chronic trichomonal infection which I have myself observed, other signs and symptoms have been reported, of which pruritus vulvae is the most common.

It is scarcely necessary to add that before treatment of the trichomoniasis is undertaken, other foci of infection which may be present in the bladder, cervix, Skene's or Bartholin's glands, or the rectum, must be identified and treated. Such conditions as monilia, gonorrhea, kraurosis vulvae, and senile vaginitis and other menopausal conditions may simulate or co-exist with trichomonal infection and must be treated according to the indications.

PLAN OF TREATMENT

The rationale of treatment is the use of a powerful oxidizing agent, sodium perborate, in an acid vaginal medium. The chemical reaction releases free nascent oxygen, which is destructive to the flagellate protozooan trichomonad.

Treatment is carried out as follows:

1. After the diagnosis has been established and other conditions have been ruled out, the vaginal secretions are tested with litmus paper. The use of nitrazene paper is a simple and fairly accurate method of determining the pH of the secretions. A pH of 6.0, which is the usual average in trichomoniasis, is sufficient to decompose the sodium perborate.

The vaginal secretion is normally alkaline before puberty and after the climacteric, but the test should be carried out in all cases, as treatment is not effective except in an acid medium. If the reaction is not acid, a douche of lactic acid solution (U.S.P., dr. 1 to one quart of warm water) is taken before treatment is begun.

2. One capsule (No. 12 veterinary) containing 10 gr. of sodium perborate (Merck or Squibb) is inserted deep into the posterior vaginal fornix, either an instrument or the rubber-gloved fingers being used. Lubrication of the capsule with KY jelly facilitates its entrance. The vagina is not swabbed out before the medication is insert-

*Read before the sixty-second annual meeting of the Louisiana State Medical Society, Shreveport, April 23, 1941.

†From the Department of Obstetrics and Gynecology of the School of Medicine of Louisiana State University.

ed, as the secretions aid in dissolving the capsule.

3. The patient is instructed to carry out the same procedure for 15 consecutive days. She is also instructed to take a vaginal douche of sodium perborate solution (15 grams to one quart of luke-warm water) at bedtime each night. The douche is taken slowly, in the reclining position.

The patient is also instructed: To use shower baths in preference to tub baths; to sterilize douche apparatus and bath towels; to wash the toilet seat daily; to cleanse the parts, after bowel movements, in the direction of the sacrum and away from the vagina; to use no drugs or douches except as directed. She is warned of the risk of mouth-to-vagina infection, and is given instruction in the proper care of her hands. She is, finally, advised to refrain from intercourse during the period of active treatment, and for 10 weeks thereafter, if possible.

4. If the vaginal reaction was originally acid, a daily douche of sodium perborate solution is continued for 75 days. If the reaction was originally alkaline, a daily douche of lactic acid (or vinegar) is taken daily for the same period of time.

The chemical reaction following treatment results in an extremely alkaline vaginal medium, with a pH of ± 10, which, however, returns to normal within 48 hours after sodium perborate therapy is discontinued.

5. Vaginal smears are examined frequently during the period of active treatment, and are almost without exception negative by the second day. Additional smears are examined at the conclusion of the next three menstrual periods; if all are negative, the patient can safely be discharged as cured.

6. The husband is advised to submit to a genito-urinary survey, to rule out infection and prevent the occasional case of re-infection.

RESULTS

The 14 cases originally reported as successfully treated by sodium perborate included 12 non-surgical gynecologic cases, one surgical case treated two months after operation, and one obstetric case treated two months after delivery. The 22 cases now added to this number include 18 non-surgical gynecologic cases, three cases treated during pregnancy, and one surgical case treated three weeks after cauterization of the cervix.

The results of treatment were satisfactory in all cases. Improvement in both symptomatology and vaginal discharge usually occurred within 24 hours. There were no recurrences, and the single instance of re-infection was traced to the husband, whose prostate gland was found to be infected.

One of the many advantages of this plan of treatment is its very low cost. The 15 capsules of sodium perborate and the amount used in bulk for the douches (approximately 8 oz.) make the total cost of the medication not more than two dollars per patient.

SUMMARY AND CONCLUSIONS

1. To the 14 cases of *Trichomonas vaginalis* vaginitis successfully treated by sodium perborate and already put on record, 22 new cases, all of which were also successfully treated, are now added.

2. It has been found that the substitution of smaller doses of sodium perborate (10 gr. instead of the 15 gr. originally employed) does not alter the effectiveness of the therapy and eliminates the slight risk of chemical burns, which occasionally occur when larger doses are used.

3. The method is effective, safe, simple, prompt, and economical, and seems to have solved the problem of therapy in *Trichomonas vaginalis* vaginitis.

REFERENCES

1. Smith, E. C.: The treatment of *Trichomonas vaginalis* vaginitis with sodium perborate. A preliminary report of 14 cases, New Orleans M. & S. J., 92:510, 1940.

DISCUSSION

Dr. E. L. King (New Orleans): I have been using this treatment since Dr. Smith first brought it to our attention, and have found it extremely satisfactory.

I want to re-emphasize a point made about diagnosis, and that is not to lubricate the speculum; also in taking the secretion, use a metal applicator or pipette. I have been told that the

ordinary wooden applicator is not satisfactory because of the possibility of the tannin causing death of the organism. The diagnosis has to be made on the motility of the organism on the wet slide, using saline or tap water. I have been using saline and the ordinary applicator to transfer the material to the slide.

One thing about this. The veterinary capsule is not always easy to get, particularly in the city where there are few veterinarians and few horses. I have a druggist send off to the manufacturer to get the capsules since I started using them.

I have used this treatment quite a few times in pregnant women, and, of course, in non-pregnant as well, and I find that the infection clears up nicely in pregnant women. Goodall stated that he had never been able to cure *Trichomonas vaginalis* in pregnancy, but I find by the use of sodium perborate the infection can be cleared up very well, and it is surprising at times how rapidly the organisms disappear. In four to five days, or a week, practically, it is impossible to find them. The patient is not cured at that time, but examination does not disclose the organism. I regard it as a perfectly simple method of treatment, and certainly, it seems to be most successful so far.

Dr. E. L. Zander (New Orleans): I heard the previous paper Dr. Smith gave and over at Charity Hospital we have a routine system of examining these patients when they come in. Each patient has a routine slide run for trichomonas, and on confirmation they are treated. We find that some of these patients react more readily to some drugs than to others. Those with an alkaline vaginal reaction respond to treatment acid in character, and those with an acid reaction respond to treatment alkaline in character.

I have used Dr. Smith's treatment and the results have been excellent, and I think this follow-up series of cases certainly establishes the worth of this simple method that is not very expensive, and certainly, is very efficient.

Dr. Earl Conway Smith (In closing): In many of the popular treatments that have been outlined, the authors will direct you to use various ways of cleansing the vagina from washing it thoroughly to using mops and drying it out. But in this plan, the secretions should be left alone for a definite purpose, that is, to aid in the dissolving of the capsule, and secondly, relieve the patient of the discomfort of disturbing those tissues, particularly in the acute case where the condition is so painful.

I do not have other points to emphasize at this time, except that I have eight other cases which will be included in my next report, and one of these cases happens to be the only rectal case of trichomonas infection that I have had, and the infection in that patient cleared up promptly, using 15 grains of the sodium perborate according to the instructions which I have outlined.

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NUTRITION AND NATIONAL DEFENSE

In the last week of May there was held in Washington a National Nutrition Conference under the aegis of Mr. Paul McNutt and the Council on National Defense. As an evidence of the national interest in the subject of nutrition, it might be said that there were present over nine hundred attendants. The meeting was addressed by prominent, important officials of Washington, including the Secretary of Agriculture, Secretary of Labor, Assistant Secretary of State and others. Mrs. Roosevelt herself delivered a splendid half hour extemporaneous talk on the importance of the subject under discussion. There were representatives from the various professions and groups that are interested in problems having to do with nutrition.

The meeting was predicated on the studies which had been made which indicate that about forty million of the people of this country are receiving a diet which is inadequate and which is not conducive to the maximal physical efficiency of the individual. In part, the fact that approximately one-third of the population of this country is not getting the right type of diet is dependent upon economic reasons. The group as a whole represents the lower economic third of the population. In part, however, the explanation lies in the fact that people as a whole have not been taught what to eat. This is the responsibility of social workers, nurses, teachers, dietitians, and notably physicians.

The importance of proper diet is dealt with very sketchily in most medical schools. Actually the number of hours devoted to the subject in many institutions is nil. It is true that the medical student acquires knowledge of vitamins, minerals and food elements in biochemistry and physiology. He becomes acquainted with deficiency expressions as related to the patient in specific cases, but no organized effort is made to teach him, in his clinical years, the importance of a properly balanced diet. The consequence is that the doctor, succeeding his graduation, has not become sufficiently imbued with the importance of this subject. Very often he fails to recognize borderline or chronic nutritional states. If he does he will probably not give the patient specific directions, but merely point out in a general and rather haphazard way the importance of adding milk or eggs or meat or green vegetables to the diet of the patient. He does not lay down the law that foods of this type are as important as medicines and should be taken just as conscientiously and regularly as drugs. The result is that the patient has a more or less general idea about what he should eat, but as a rule he

does not understand specifically just what he must do to restore himself to good health.

It has taken a national emergency further to emphasize the importance of a well rounded, balanced diet. It is only when, in addition to the required number of energy-producing calories, the diet contains ample vitamin and mineral, that the defense worker is able to function at the peak of his efficiency. It is not only the defense workers, however, who should be considered, but also the women and children who, incidentally, are more likely to suffer from mild deficiency states than is the male, who should be taught what to eat in order to maintain good health and physical well-being.

THE FINANCIAL RELATIONS BETWEEN PATIENT AND PHYSICIAN

Sometime ago the Board of Regents of the American College of Surgeons issued a circular to the Fellows of the College as well as sending this to medical journals throughout the country. This circular has to do with "the principles of financial relations in the professional care of the patient." While it is true that there are probably not five doctors in the state who belong to the State Medical Society who split fees, however every doctor has at times the proposition made to him in an indirect and circuitous way to split fees with some physician under the guise other than out and out fee splitting. In order to be on the watch for these subterfuges, it would be an excellent idea for all doctors in addition to the surgeon, to adhere to the principles laid down by the College of Surgeons.

Briefly there are nine principles; the first two are to the effect that the doctor is entitled to compensation and he should acquaint his patients with the fact that they have a certain financial responsibility to those concerned in their care. The succeeding principles are much as follows: The doctor should send to the patient a detailed statement giving charges for professional services that were rendered. Combined statements should not be sent as they are subterfuges often for fee splitting. Every doctor who took part in the care of the patient should send a personal receipt for monies received. It is not advisable for a third person to enter into financial relations between the doctor and the patient; therefore hospitals should not be encouraged to collect a physician's fees except in a case of formal organized clinics or legalized partnerships. These seven principles apply to the care of any patient irrespective of the specialty to which the consultant or surgeon belongs.

In the instance of surgeons, the last two of the nine principles apply particularly. They state that the referring doctor should not act as an assistant or anesthetist unless he is thoroughly competent by virtue of training and experience. The surgeon is expected to pay his assistant and in the event the assistant has referred the patient to the operating surgeon he in turn will send his own detailed bill, showing the charges for professional services rendered.

It is believed if these principles are followed, that fee splitting would be rendered non-existent. Aside from the fee splitting features of the statement of the Board of Regents of the College of Surgeons, the advice they give in regard to financial relations with patients is an excellent principle for all doctors to follow. Let one other thing be added; that is, bills should be rendered promptly and all financial relationships should be on a strictly business basis.

HIGH LEUKOCYTE COUNTS

One of the interesting findings in the study of the blood of various types of disease is the occasional marked increase in the number of leukocytes, resembling at times, in so far as total count is concerned, a leukemia. Even with careful study of the morphology of the blood, it is sometimes difficult to differentiate the condition from a true leukemia. There has been, on this subject, quite a bit of literature. Krumbhaar[1] first called the condition leukemoid, indicating a leukemia-like blood picture. One of the most notable examples of this is the marked increase in the leukocytes, practically all round cells, which occurs occa-

sionally in whooping cough. Counts of over 100,000 are observed from time to time.

The introduction of the sulfonamide group of drugs has resulted in an aroused interest in this subject. Leukemoid reactions are by no means uncommon following the use of these therapeutic agents. These drugs often produce a leukemoid reaction, characterized by a relative and absolute increase in the polymorphonuclear cells. Frequently young immature cells which resemble those found in leukemia are found in the blood smear.

In an attempt to clarify this subject, Hill and Duncan[2] have prepared a classification of leukemoid reactions solely of the myeloid series. A leukemoid reaction they consider to be present when either the total count is over 50,000 or when there are many immature cells in the smear, or there is a combination of the two. Their classification of leukemoid reactions is divided into three main groups: (1) That which results from bone marrow stimulation; (2) that which depends upon the exaggerated liberation of leukocytes, in other words a marrow response to overwhelming demands; (3) ectopic hematopoiesis, under which circumstance blood is produced in foci outside of the bones as result of injury to bone marrow. The first main type is characterized by a high leukocyte count, frequently an eosinophilia, with relatively few myelocytes. The conditions that produce this include such things as complicated bone fractures, metastatic carcinoma of the bone, Hodgkin's disease, bone marrow lesions, pyogenic infections and severe reactions to intravenous medication or following blood transfusions. In the second main group the leukocyte count is usually not as high as in the first group. Eosinophilia is uncommon and there is a greater production of immature white cells than in the first group. This type of reaction may occur in acute hemolysis and most notably and most frequently nowadays after sulfanilamide therapy. It may be noticed in the crises of pernicious anemia, after severe hemorrhage and septicemia and a few other conditions. In the third group the leukocyte count is not particularly exaggerated but there are many immature white cells in the blood smear. This type of blood picture is found in osteosclerosis, in prolonged untreated pernicious anemia, in tumors which have extensively involved the bone marrow, and in lipoid histiocytosis.

Many of these conditions are so obvious the possibility of leukemia would not be considered. In others it may be extremely difficult to differentiate the two conditions. Finally, it should be pointed out that unusual blood pictures are by no means uncommon and that they are quite likely to occur after the use of the sulfonamide drugs which are becoming so popular as to be employed in practically every type of infection. Occurring during the course of sulfonamide therapy, such leukemoid reactions are a definite indication for the cessation of therapy unless of course the patient is so critically ill that the sulfonamide seems to be the only hope of saving life.

1. Krumbharr, E. B.: Leukemoid blood pictures in various clinical conditions, Am. J. Med. Sci., 172:519, 1926.

2. Hill, J. M., and Duncan, C. N.: Leukemoid reactions, Am. J. Med. Sci., 201:847, 1941.

HOSPITAL STAFF TRANSACTIONS AND CLINICAL MEETINGS

CHARITY HOSPITAL
New Orleans

The regular monthly meeting of the Medical Section of the Charity Hospital Visiting Staff was held on Tuesday, June 17, 1941, at 8:00 p. m., in the Auditorium on the second floor of Charity Hospital. The program consisted of the following: A Case Presentation by Dr. Edgar Hull; Case Presentation by Dr. Alice Baker.

Following the scientific program there was election of officers.

LOUIS K. LEVY, JR., M. D., Sec.

MERCY HOSPITAL
New Orleans

The regular monthly meeting of the staff was held on June 4, 1941, at 8:15 p. m., and was presided over by Dr. T. F. Kirn, chairman.

By courtesy of the Petrolagar Laboratories a very interesting and beautiful film on eclampsia and its conservative therapy was shown.

This was followed by a very interesting talk (emphasized with lantern slides) by Dr. Barrett Kennedy on tuberculosis of the skin. Dr. Howles discussed the paper, emphasizing the fact that

tuberculosis of the skin has to be distinguished from other skin lesions, particularly the lymphogranulomas. Biopsy should be relied on for a diagnosis. Dr. Edgar Hull stated sarcoids do occur internally and go undiagnosed. He also stated that sarcoids are not definitely proved to be tuberculosis. Dr. John Menville also discussed the paper.

Dr. Warren Hébert then showed a case (the patient was brought in to show the staff) of carcinoma of rectum in a white male, aged 74, who presented a large growth in rectum 6-7 cm. above the anus, with better than fifty per cent of the circumference of rectum being involved and protruding into rectum.

He stated that it was impossible to fit the case into any class of surgery or to apply radium with or without colostomy. He decided on radium alone and gave 2700 mg. hours and on examination today the lumen of the bowel is normal—no evidence of growth and on digital examination posterior surface of rectum showed slight induration. The patient was presented to show the possibilities of radium in an apparent hopeless instance of a person who could not stand any type of operative procedure.

Dr. Monte then presented the deaths of the month, discussing the histories and findings. One case in particular gave rise to much discussion by Drs. Thomas, Ogden, and Monte. This case was one of a white female, aged 32, (post-tonsillectomy) dying with acute dilatation of stomach and heart, and acute nephritis. This case was autopsied.

The reading of last meeting's minutes was dispensed with on motion by Dr. E. L. Zander, seconded by Dr. E. Hull.

A communication from the Ladies' Auxiliary was read. The contents, briefly, were that the ladies desired to know from the staff what they desired be done with money accumulated by them during the past months; whether a signal call system or some other pertinent need of the staff might be provided. Suggestions were asked for.

Dr. Zander then discussed more fully the auxiliary's intentions and moved that a committee of four members be appointed by the Chairman to discuss this matter and arrive at some conclusion. On this committee Dr. Zander was appointed Chairman with the following as members of the Committee: Drs. H. A. Thomas, W. Roeling, and John Irwin.

Two applications were received, from Drs. Theodore L. L. Soniat and Gilbert Tomskey. It was moved by Dr. Zander, seconded by Dr. Hall, that these applications be referred to the membership committee for action. Dr. Howles spoke about the picnic to be given later this month.

N. J. TESSITORE, M. D., Sec.

TRANSACTIONS OF ORLEANS PARISH MEDICAL SOCIETY

CALENDAR

July 1. Eye, Ear, Nose and Throat Staff, 8 p. m.

July 2. Clinico-pathologic Conference, Charity Hospital Morgue Amphitheater, 1:30 p. m.

July 3. Clinico-pathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.

July 7. Orleans Parish Medical Society Board of Directors, 8 p. m.
Clinico-pathologic Conference, Hotel Dieu, 8:15 p. m.

July 8. Eye, Ear, Nose and Throat Society, 8 p. m.

July 9. Clinico-pathologic Conference, Charity Hospital Morgue Amphitheater, 1:30 p. m.

July 14. Orleans Parish Medical Society, Joint Scientific and Second Quarterly Executive Meeting, 8 p. m.

July 16. Clinico-pathologic Conference, Charity Hospital Morgue Amphitheater, 1:30 p. m.

July 17. Clinico-pathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.

July 18. New Orleans Dispensary for Women and Children Staff, 8 p. m.

July 21. Clinico-pathologic Conference, Baptist Hospital, 8 p. m.

July 22. Baptist Hospital Staff, 8 p. m.

July 23. Clinico-pathologic Conference, Charity Hospital Morgue Amphitheater, 1:30 p. m.
French Hospital Staff, 8 p. m.
Catholic Physicians' Guild, 8 p. m.

July 24. Clinico-pathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.

July 25. L. S. U. Faculty Club, 8 p. m.

July 30. Clinico-pathologic Conference, Charity Hospital Morgue Amphitheater, 1:30 p. m.

July 31. Clinico-pathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.

During the month of June the Society held one regular scientific meeting. The program was as follows:

1. Introducing a Modification of the Standard Stethoscope for Use in Mass Examinations, by Dr. Emile A. Bertucci.

2. The Neurosurgical Treatment of Sciatic Pain, by Dr. Dean H. Echols.

3. Diagnosis and Treatment of Gastric Syphilis, with Report of Case and Lantern Slides, by Dr. Grace Goldsmith.

TREASURER'S REPORT

Bank Balance, April 30, 1941	$6,332.14
May Credits	$ 531.02
Total Credits	$6,863.16
May Expenditures	$ 766.08
Actual Book Balance, May 31, 1941	$6,097.08

NEWS ITEMS

Dr. Albert E. Casey was elected chairman of the Southern Section of the Society for Experimental Biology at a recent meeting of this organization. Other officers elected were Dr. Isidore Cohn, vice-chairman; and Dr. W. A. Sodeman, secretary.

Dr. F. L. Jaubert was re-elected president of the Louisiana Society for Crippled Children, at the annual meeting on May 17.

Dr. Lucien A. LeDoux attended a meeting of the Executive Committee of the Council of the Southern Medical Association in St. Louis on May 13. The annual meeting of the Southern Medical Association will be held in St. Louis on November 11-14, with headquarters at the Hotel Jefferson.

Dr. Hilliard E. Miller attended the meeting of the American Gynecological Society in Colorado Springs, May 26-28. Dr. Miller read a paper on "A Comparative Study of Total, Subtotal and Vaginal Hysterectomies."

Dr. William H. Perkins was elected president of the Council of Social Agencies at the twentieth anniversary meeting of this group.

Dr. Curtis H. Tyrone was recently appointed to the board of directors of the Department of Public Welfare of the City of New Orleans.

Dr. Gilbert C. Anderson gave a paper on "Intracranial Hydatidosis" at the recent annual meeting of the Harvey Cushing Society in Rochester, New York.

Dr. Howard Mahorner was elected to membership in the American Association for the Study of Goiter at the annual meeting in Boston, May 12-14.

Dr. Alton Ochsner presented a paper entitled "Surgical Significance of Metastasis in Primary Carcinoma of the Lung" at the meeting of the American Association for Thoracic Surgery in Toronto, June 9.

Drs. Allan Eustis and John S. Herring attended the Tri-county Medical Society meeting in Tylertown, Miss., June 10. Dr. Eustis spoke on "The Present Status of Vitamin Therapy," and Dr. Herring spoke on "Obstetrical Hemorrhages."

Dr. Donovan C. Browne addressed the membership of the Tangipahoa Parish Medical Society at their meeting in Hammond, June 12.

Drs. John S. Herring and Harry Meyer have been certified by the American Board of Obstetrics and Gynecology.

E. L. ZANDER, M. D., Sec.

LOUISIANA STATE MEDICAL SOCIETY NEWS

CALENDAR

PARISH AND DISTRICT MEDICAL SOCIETY MEETINGS

Society	Date	Place
East Baton Rouge	Second Wednesday of every month	Baton Rouge
Morehouse	Second Tuesday of every month	Bastrop
Orleans	Second Monday of every month	New Orleans
Sabine	First Wednesday of every month	
Second District	Third Thursday of every month	

FIFTH DISTRICT MEDICAL SOCIETY

The Fifth District Medical Society held its first meeting of the year at the Virginia Hotel in Monroe on Friday, May 23, 1941. The scientific program followed the dinner and consisted of the following presentations:

Dr. M. E. Lapham, Dean, Tulane University School of Medicine, New Orleans, spoke on "The Relation of a Medical School to the Community"; Dr. J. S. Speed, Willis Campbell Clinic, Memphis, Tennessee, spoke on "The Causation and Treatment of Disabilities in the Commoner Types of Fractures"; Dr. Lucien A. LeDoux, New Orleans, spoke on "The Prevention and Repair of the Most Common Obstetrical Injuries"; Dr. Waldemar R. Metz, New Orleans, spoke on "Fractures of Facial Bones."

BI-PARISH MEDICAL SOCIETY

The Bi-parish Medical Society met in the Staff Room, East Louisiana State Hospital on June 11, 1941, after a bounteous repast in the dining room. Resolutions were read relative to the passing of our late associate Dr. C. S. Miller. On motion the

following resolutions were adopted, a copy sent to the widow of the late Dr. C. S. Miller, and a copy spread upon the minutes of the society.

Whereas, God in his wisdom has removed from the medical fraternity Dr. C. S. Miller, a member of the Bi-parish Medical Society, whose presence will be missed and mourned by its members, and

Whereas, Dr. Miller was an inspiration and guide to its members, always wisely and diligently working for the advancement of medicine and willingly and cheerfully giving much of his time to relieve the ills and physical sufferings of mankind, his interest in scientific medicine never waned during the many years he was privileged to practice his chosen profession,

Therefore, be it *Resolved* that this society extend to his bereaved widow and family our deepest and sincerest expression of sympathy in the death of Dr. C. S. Miller, a member of the Bi-parish Medical Society, and

Be it further *Resolved*, that a copy of this resolution be sent his widow and a copy spread upon the minutes of the Bi-parish Medical Society.

Signed: S. L. SHAW, M. D.
E. M. TOLER, M. D.
E. M. ROBARDS, M. D.

The scientific program consisted of an excellent paper on "Psychomatic Diseases" read by Dr. F. A. Donaldson, Superintendent of The East Louisiana State Hospital. The paper was favorably discussed by members present and a vote of thanks extended to Dr. Donaldson for the presentation of his paper. The society adjourned to meet the first Wednesday in September.

E. M. TOLER, M. D., Sec.

DR. MATAS HONORED AGAIN

Tuesday evening, June 24, a Portrait Medallion of Dr. Rudolph Matas was unveiled at the Touro Infirmary. This Medallion was prepared by the well known artist, Mrs. J. H. Manning, and is a beautiful piece of artistic work.

In the ceremony, preceding the presentation of the Medallion, which was given by the Board of Managers of Touro Infirmary, Mr. Charles Rosen, Dr. M. J. Magruder and Dr. Isidore Cohn spoke. Dr. Matas spoke in his usual felicitous vein in response to these addresses. He recounted the history of Touro Infirmary in part and spoke from first-hand information obtained during the period in which he was Chief Surgeon, 1907-1935. Since that time he has been Emeritus Chief Surgeon. A large audience composed not only of the Board members and the staff of Touro, but also Dr. Matas' many professional and lay friends attended the ceremony.

The national medical fraternity of Nu Sigma Nu (founded in 1882) represented at Tulane by Beta Iota Chapter, has awarded its "Degree of Merit," its highest distinction, to Dr. Matas. The presentation of the insignia will be made at the annual convocation, Denver, Colorado, in 1942. Dr. James Bryan Herrick, the distinguished neurologic specialist in Chicago, will also receive the insignia of the same degree at the Denver meeting.

This degree has been conferred only nine times in the fifty years that the fraternity has been in existence.

Mrs. J. H. Hutton (Mary Louise Marshall) has been elected president of the American Library Association. Miss Marshall has been librarian of the Orleans Parish Medical Library and the Tulane Medical School Library for many years. Her many friends in the medical profession will be in accord in extending congratulations to Miss Marshall on receiving this new honor.

1941 GRADUATE FORTNIGHT

The so-called Graduate Fortnight conducted by the New York Academy of Medicine will be held this year from October 13 to 24. The subject for this year is "Cardiovascular Diseases Including Hypertension." A list of distinguished speakers has been selected for the evening lectures, from men scattered over the United States and who have carried out work in the theme subject. In the afternoon, hospital clinics are held, to be participated in by clinicians from the staff of the hospital where the clinics are conducted. In the morning panel discussions will take place. The program will be mailed on request. Address: New York Academy of Medicine.

NEWS ITEMS

On May 14, 1941, the Mississippi State Medical Association met at Biloxi, Miss., when Dr. Matas delivered the annual address. In 1915, Dr. Matas had delivered the annual address with the "Soul of the Surgeon" as his subject. The last address, under the title "The Years Between" reviewed the progress of events in the course of the intervening twenty-six years, between 1915 and 1941. The lessons of the first World War and the effects of the present menacing war crisis on America and civilization were especially analyzed from the medical viewpoint.

The U. S. Civil Service Commission announces examinations for Junior Graduate Nurse, Associate and Assistant Public Health Nursing Consultants. Applications should be filed immediately.

The National Nutrition Conference for Defense was held May 26-28 in Washington, D. C. It was pointed out at this meeting that approximately one-third of all families in the United States are living on a diet which is inadequate.

AMERICAN CONGRESS OF PHYSICAL THERAPY

The Congress will be held September 1-5, inclusive, at the Mayflower Hotel, Washington, D. C.

For further information, address the American Congress of Physical Therapy, 30 North Michigan Avenue, Chicago.

AMERICAN COLLEGE OF PHYSICIANS

The twenty-sixth annual session of the College will be held in St. Paul, April 20-24, 1942. Dr. Roger I. Lee, President of the College, has charge of the program of the general session; Dr. John A. Lepak, of St. Paul, has been appointed general chairman in charge of hospital clinics, round-table discussions, and all local arrangements.

The members of the Orleans Parish Medical Society regret that Senior Surgeon W. L. Smith has been relieved from duty at the U. S. Marine Hospital in New Orleans and ordered to Kentucky. Dr. Smith has been active in furthering the conjoint meetings of the society and the staff of the hospital. His leaving New Orleans will occasion regret among the many members of the profession who have been in attendance at the interesting clinical meetings where Dr. Smith has dispensed hospitality and participated in scientific discussion.

INFECTIOUS DISEASES IN LOUISIANA

The morbidity report of the Section of Epidemiology of the Louisiana State Department of Health for the week of May 17 listed surprisingly few reportable diseases, only six diseases being found in numbers greater than ten: 159 cases of syphilis, 52 of measles, 40 of pulmonary tuberculosis, 26 of pneumonia, 14 of whooping cough, and 12 of cancer. Of the rarer diseases there was found a case of poliomyelitis in Lincoln Parish; a typhus fever patient was discovered in Iberia. The report for the week ending May 24 showed again the same state of affairs existing as in the previous week; there were listed 198 cases of syphilis, followed by 78 of gonorrhea, 27 each of measles and pulmonary tuberculosis, 17 of cancer, and 10 of pneumonia. Two cases of tularemia were reported this week, three of undulant fever, and one of typhus fever. For the twenty-second week of the year, closing May 13, 188 cases of syphilis were listed, followed by 36 of cancer, 26 of pulmonary tuberculosis, 20 of gonorrhea, 17 of measles, 13 of typhoid fever, and 11 of malaria. The typhoid fever cases were distributed as follows: Caddo 1, Catahoula 8, East Baton Rouge 1, Orleans 2, and Richland 1. Iberia reported a case of undulant fever, and Orleans one of epidemic cerebrospinal meningitis. In the twenty-third week of the year, the morbidity report became more natural. Syphilis as always led the list with 165 cases, followed by 30 of gonorrhea, 28 of pulmonary tuberculosis, 18 each of measles and pneumonia, 17 of malaria, 14 of epidemic dysentery, 12 of cancer, and 10 of septic sore throat. One case of smallpox was reported this week. Three tyhus fever cases were listed, two from Tangipahoa and one from Vermilion; three cases of typhoid fever were discovered, one each in Caddo, Jackson, and Washington. Orleans Parish reported three cases of epidemic cerebrospinal meningitis.

HEALTH OF NEW ORLEANS

The Bureau of the Census, U. S. Department of Commerce, has to report that for the week ending May 10 there were 132 deaths in the City of New Orleans as contrasted with 135 the previous week and divided 77 white, 55 negro, and 19 infant. The infant deaths were divided into nine white and 10 negro. For the week closing May 17, only 117 deaths were listed, a surprisingly low death rate compared with the three year average of 145. Seventy-three of these deaths occurred in the white and 44 in the negro population, and there were three white and 11 negro infant deaths. For the succeeding week, which terminated May 24, the death rate jumped up to the average for this period of the year, 134 deaths being reported, of which 89 were in the white and 45 in the negro race. There were 14 infant deaths divided equally between the two races. For the week which closed May 31 the number of deaths in the city was 131, divided 74 white and 57 negro, and again there were 14 infant deaths in the total, again divided fifty-fifty between the two races. There was a sharp diminution in the number of deaths in the week of June 7. Of the 106 deaths, 68 were listed as white and 38 as negro; of the ten infant deaths, six were white and four negro.

WOMAN'S AUXILIARY

Louisiana State Medical Society

The president, Mrs. Aynaud Hébert, has issued this complete list of officers, standing committee chairmen, councilors, and advisory councilors for the year 1941.

President, Louisiana State Medical Society
Dr. King Rand, Alexandria

ADVISORY COUNCIL

Dr. W. R. Metz, New Orleans
Dr. W. S. Kerlin, Shreveport

OFFICERS

President—Mrs. Aynaud F. Hébert, New Orleans.

President-Elect—Mrs. Clarence B. Erickson, Shreveport.

First Vice-President—Mrs. H. O. Barker, Alexandria.

Second Vice-President—Mrs. Cecil O. Lorio, Baton Rouge.

Third Vice-President—Mrs. B. L. Cook, Minden.

Fourth Vice-President—Mrs. R. W. O'Donnell, Monroe.

Treasurer—Mrs. Daniel J. Murphy, New Orleans.

Recording Secretary—Mrs. Rhodes Spedale, Plaquemine.

Corresponding Secretary—Mrs. Chas. R. Hume, New Orleans.

CHAIRMEN OF STANDING COMMITTEES

Archives—Mrs. William Kohlman, New Orleans.

Doctors' Day—Mrs. J. P. Mauboules, Rayne.

Exhibits—Mrs. Waldemar Metz, New Orleans.

Finance—Mrs. M. C. Wiginton, Hammond.

Historian—Mrs. John S. Dunn, New Orleans.

Indigent Physicians' Fund—Mrs. John D. Frazar, DeRidder.

Legislation—Mrs. Joseph E. Heard, Shreveport.

Organization—Mrs. Fred L. Fenno, New Orleans.

Parliamentarian—Mrs. John L. Scales, Shreveport.

Press and Publicity—Mrs. Jules Myron Davidson, New Orleans.

Program—Mrs. P. A. Donaldson, Reserve.

Printing and Supplies—Mrs. H. Theodore Simon, New Orleans.

Public Relations—Mrs. J. O. Duhon, Lafayette.

Revision of By-Laws—Mrs. Paul G. Lacroix, New Orleans.

Circulation—Mrs. Carroll Gelbke, New Orleans.

COUNCILORS

First District—Mrs. Edmond Souchon, New Orleans.

Second District—Mrs. Roy B. Harrison, New Orleans.

Third District—Mrs. Edwin Landry, New Iberia.

Fourth District—Mrs. M. D. Hargrove, Shreveport.

Fifth District—Mrs. A. D. Tisdale, Monroe.

Sixth District—Mrs. Brinsfield King, Baton Rouge.

Seventh District—Mrs. Walter Moss, Lake Charles.

Eighth District—Mrs. M. H. Foster, Alexandria.

Respectfully submitted,
MRS. JULES MYRON DAVIDSON,
Chairman, Press and Publicity.

BOOK REVIEWS

Illustrations of Bandaging and First-Aid: Compiled by Lois Oakes, S. R. N., D. N. Baltimore, Williams and Wilkins Co., 1940. Pp. 248. Price $2.00.

This is a very practical book for the layman, boy scout, and young doctor. Bandaging is a subject often neglected in medical schools and is learned during internship or by experience in practice. Every graduate should read this little book prior to his activities as an intern.

E. J. GILES, M. D.

Medical State Board Examinations: Topical Summaries and Answers: By Harold Rypins, A. B., M. D., F. A. C. P. 4th. ed. Philadelphia, J. B. Lippincott Co., 1939. Pp. 448. Price $4.50.

This edition, just as its predecessors, affords a rapid means of review for all branches of medicine and surgery. Primarily the author assumes that the reader will have sufficiently wide range of knowledge to allow only the essential high points to be stressed. The arrangement of the book into sections of Anatomy, Physiology, Chemistry, Bacteriology, Pathology, Hygiene and Preventive Medicine, Obstetrics and Gynecology, Medicine and Surgery, covers the necessary field of review quite satisfactorily. The placing of the questions at the end of each section, affords a means of checking on one's grasp of any one subject, and also clarifies the subject more than the older system of arranging the whole book in question and answer form. For the prospective candidate for the State Board examination the book is well worth reading.

FRANK J. COX, M. D.

A Surgeon Explains to the Layman: By M. Benmosché, M. D. New York, Simon and Schuster, 1940. Pp. 317. Price $3.00.

Whether there is a real need for such a book as this is the first point to be considered in discussing it. Speaking as a surgeon, the reviewer would say that any book on surgery which would drive the reader more rapidly to the surgeon when the need for him arose would be heartily welcome. Any book which removed from the lay mind the terror still attached to the word operation would be equally welcome. Finally, any book would be welcome which could make clear the miracles capable of accomplishment by promptly and properly performed surgery.

Whether such purposes can be achieved by taking the public entirely and technically into the surgeon's confidence is another matter. Every surgeon is cursed by patients who show the disastrous effects of a little knowledge. The present reviewer rather fears that the readers of this book will increase the number of those thus dangerously informed.

Take the subject of appendicitis, for instance. Most of what the author says about it is beyond reproach. The opening paragraphs of the section devoted to it make clear that it is a dangerous and treacherous disease, frequently atypical in its manifestations, and always urgent. But the effect of the urgency is lost by the interruption of the discussion by some paragraphs on chronic appendicitis. It is still further destroyed by the section called "The Operation Itself," in which, according to the first paragraph, the patient suffering from acute appendicitis "is followed through every step of his experience."

"Unless he is an emergency case where the doctor decided that extreme haste is imperative," writes the author (with a fine disregard of rhetoric and diction) "he will spend a quiet night at the hospital. If he is fidgety he will be given a light sedative to insure a good night's sleep. And all that night everything will be held in readiness for an immediate operation in case his appendix decides to flare up suddenly. In the morning . . ."—in the morning comes the operation.

Surgeons who desire to emphasize the urgency of acute appendicitis do not write thus. It would be rather difficult to persuade a patient with a presumable gangrenous appendix, in the dangerous period of calm, to let himself be operated on at once if he had read and inwardly digested this book. He would probably insist that he have his "good night's sleep" in his own bed at home.

The discussion of the blood count in acute appendicitis is somewhat misleading. As the author says of the leukocytosis of 22,000 cells which he mentions as illustrative, "That's quite a sharp increase over normal." It is so sharp an increase, in fact, that even in atypical appendicitis it is atypical. As every experienced surgeon knows, and as every patient who is to be informed of the matter should be told, the white blood cell count in any variety of acute appendicitis may be anything at all.

Operation for presumable appendicitis when the real diagnosis is pneumonia is by no means as disastrous as the author implies. If the differential diagnosis cannot be made positively—as it sometimes cannot be—an unnecessary operation in the presence of pneumonia is likely to be far less disastrous than abstinence from operation in the presence of possible acute appendicitis. In the reviewer's opinion, the proper thing to teach the laity is that in certain cases there is no way in the world of determining the only really important point, that the disease is *not* acute appendicitis, and that the patient's best interests are sometimes served by a laparotomy that proves to be unnecessary. The author's teaching is also somewhat out of line with general practice when he states that it is now considered best to make a midline incision when operating on a woman for acute appendicitis and a right rectus or McBurney incision when operating on a man.

Turning to other matters, it is doubtful that the choice between the medical and surgical treatment of peptic ulcer "is not as complicated as you would think." Most surgeons would dispute that statement, and the internists would be on their side. The choice between cholecystectomy and cholecystostomy, according to the author, is decidedly more complicated, though most surgeons believe that the place of cholecystostomy has been definitely established and is very limited indeed.

"The forbidden temple" is today a somewhat misleading term even for the heart, and is certainly a misleading term for the brain and the chest. Stage surgery is not mentioned in the discussion of thoracoplasty, and the number of persons alive and active after that operation belies the statement that it is "a last resort," which conveys an idea of antemortem desperation certainly not implicit in the procedure.

The section on preparation for biliary tract surgery is brief and casual, and it might be difficult to prepare a jaundiced patient for surgery if he had read it and accepted it. The most startling omission in the whole book occurs in this section. The patient with the hemorrhagic diathesis in jaundice is dismissed in two sentences, and his special therapy consists of "doses of calcium chloride over a period of a few days before operation." This is dangerously misleading teaching in the year 1940, more than five years after the first satisfactory test for the hemorrhagic diathesis was devised, more than four years since vitamin K-bile salt therapy first provided the surgeon with the practical solution of that formerly highly fatal state.

The language of the book, as the foreword states, is colloquial. It is almost too colloquial, perhaps, for so serious a theme. Furthermore, the statement that "Surgery itself is never very complicated," reduces the matter to far too simple terms. The line drawings, which are entirely diagrammatic and are numerous (although not numbered), are probably adequate for their purposes.

Most of these comments, however, beg the issue. The chief issue is still whether there is a real need for this particular kind of book, and of that this reviewer still remains in very considerable doubt.

FREDERICK FITZHERBERT BOYCE, M. D.

Behind the Scenes of Murder: By Joseph Catton, M. D. New York, W. W. Norton & Co., Inc. Pp. 355. Price $3.00.

This book is an account of the experiences of a well known psychiatric expert witness with murderers and criminals. Some of these people were at one time very well known. In fact, Dr. Catton has had the opportunity of observing and studying some of the most widely publicized criminals whose names at one time or another were almost household words. Some of the better known included Hickman, murderer of little Marian Parker, Winnie Judd who killed two of her women friends and then mimicked insanity to escape hanging, the Honolulu honor slaying participants, Harry French and many others.

The psychologic study of these various murderers is enlightening and informative. A murderer may be the result of any one of a number of causes, some of which may be the result of demonstrable mental derangement which could be labeled insanity, while other instances are merely temporary or moderately slight deviations from normal. Most of the book will be found of considerable interest to the average lay reader. To the physician and particularly to one who is likely to be called on as an expert witness the book gives many suggestions as

to the examination of the patient and as to the testimony that the physician should give and as how best to present it. Suggestions are also advanced as to how the expert witness should conduct himself on the stand when he is badgered and irritated by the defense attorney. The doctor will find interesting also the sections that have more general appeal and which apparently have been written in goodly part for the student of crime who is not a physician.

J. H. MUSSER, M. D.

The Medical Reports of John Y. Bassett, M. D., the Alabama Student: With introduction by Daniel C. Elkin, M. D. Springfield, Charles C Thomas, 1941. Pp. 62. Price $1.50.

In this small book are reprinted two of the medical reports of the Alabama physician, John Y. Bassett. It is these unique reports which so fascinated the great humanitarian Sir William Osler, and led him to write his essay, *The Alabama Student.* The charm which attracted Osler is still present in every page in these reports. Almost more philosophic than medical, they are full of rare case histories, satirical anecdotes, serious medical descriptions, and humorous side remarks, which are bound to charm even the casual reader. In this book, Bassett, the free-thinker, is made available in his original, intimate form.

ROBERT MUNGER, M. D.

Electrocardiography in Practice: By Ashton Graybiel, M. D., and Paul D. White, M. D. Philadelphia, W. B. Saunders Company, 1941. Pp. 319. Price $6.00.

White is already well known through his books and papers, Graybiel well remembered for his part in this outstanding publication. Unquestionably this is the most practical presentation on electrocardiography published. The absence of theoretical considerations renders it concise; the special illustrative attention given to normal and to departures from the normal range, close and far, is expansive in its thoroughness. The novel plan of the book in carrying a descriptive treatise on the even numbered page and the illustrative cardiogram on the uneven is a commendable arrangement which eliminates the distraction of fumbling pages.

The cardiologist will find it interesting and complete. The practitioner and student will enjoy satisfaction in comparing their decisions with the authority of the authors and will gather a reading knowledge difficult to obtain otherwise. The teacher gains a pleasing collection for instruction which needs no supplement and which carries all the benefits of an extensive background of experience and study.

GORDON MCHARDY, M. D.

Clinical Pellagra: By Seale Harris, M. D., assisted by Seale Harris, Jr., M. D., with foreword by E. V. McCollum, Ph. D., LL. D., and contributed to by Julian M. Ruffin, M. D., David T. Smith, M. D., V. P. W. Sydenstricker, M. D., Katherine Dodd, M. D., William B. Porter, M. D., Upshur Higginbotham, M. D., Don C. Sutton, M. S., M. D., John Ashworth, M. D., and William D. Partlow, M. D. St. Louis, The C. V. Mosby Company, 1941. Pp. 494; 66 illus. and four color pl. Price $7.00.

This excellent clinical study of pellagra covers in an interesting manner the history of the disease, the theories of epidemiology and etiology, and the pathology, symptomatology and treatment. It also includes recent clinical investigations of special interest.

One hundred nine of the 438 pages of text are devoted to the history of man's attempts to solve the problem of pellagra. It is fair to complain that the duplication of material in some of these chapters might profitably be eliminated. On the other hand, it really does require less space to tell what is known of the disease than it does to recount its history and to give adequate recognition to the many who have worked in this field and to their theories about the disease.

Generally speaking, the sequence of chapters could be more logical. There is no apparent reason, for instance, for inserting the chapter on alcoholic pellagra between the chapter on history and epidemiology in the United States and the chapter on the historical review of the search for the causes of pellagra.

It would also seem more logical for the discussion of pathology to follow the clinical presentation.

Anyone who reads this book will realize that a crusader has had a major part in its production. The chapters on devitaminized foods (XXVII) and on pellagra and Southern prosperity (XXVIII) as well as other aspects of the book bear witness to that.

The senior author's own views regarding the genesis of pellagra and his review of the relationship to each other of pellagra, pernicious anemia and sprue indicate the relative complexity of the clinical problem. The biochemist speaks simply of a nicotinic acid deficiency, but the term takes on far wider implications when the clinician attempts to determine the primary cause of the deficiency in the individual patient under his observation. The point is well taken that while the simple deficiency may cause many of the phenomena of clinical pellagra, its causes are many and not yet clearly understood, and the resulting deficiency may be not pure but mixed.

The chapters by the contributing authors form a very important part of the book, particularly the chapters contributed from Duke University, the University of Georgia, and Vanderbilt University. The contribution from Duke University cov-

ers clinical investigations on the effect of radiant energy on the clinical manifestations of pellagra and the use of liver extract and nicotinic acid therapy. The contributions from the University of Georgia, in addition to a general survey of 660 cases, include studies on the possible rôle of an intrinsic gastric factor in the etiology and treatment of the disease and a comparative study of various specific measures such as stomach preparations, liver extracts and nicotinic acid. The contribution from Vanderbilt University treats the subject of pellagra in childhood and is of special significance.

The book is stimulating because of the various points of view presented in it. On the other hand, a more discriminating selection of material might pehaps have made it of wider usefulness.

ROBERT C. LOWE, M. D.

Studies on Tuberculosis: By Eugene D. Opie, E. Joyce Saward, Persis Putnam, A. H. Graham, and P. W. Auston. Baltimore, The Johns Hopkins Press, 1941. Pp. 198. Price $1.10.

This monograph, number 16 in a series from the American Journal of Hygiene, is an epidemiologic study of tuberculosis among negroes in Jamaica and Alabama. Tuberculin tests, roentgenologic surveys, and analyses of tuberculous households have been used in a manner similar to the methods of the Phipps Institute in Philadelphia. Statistical methods have been employed throughout. The text and numerous tables and figures furnish comparisons between infection rates, attack rates, and mortality rates for negroes in Jamaica slums, in rural Alabama, and in Philadelphia, as well as the comparable figures for the white population in the same areas. The conclusions serve to confirm most clinical impressions concerning the spread and behavior of tuberculosis among negroes and to correct certain false ideas on this subject. The findings are directly applicable to the problem of tuberculosis control among the negroes of Louisiana. This monograph should be studied by physicians treating tuberculosis among negroes and by public health workers who have to deal with this problem.

J. L. WILSON, M. D.

Textbook of Medicine by American Authors: Edited by Russell L. Cecil, A. B., M. D., Sc. D., and Foster Kennedy, M. D., F. R. S. E. 5th ed. Philadelphia and London, W. B. Saunders Company, 1940. Pp. 1744; 173 illus. Price $9.50.

Since the first edition was published in 1927, this book has been a standard text in the field of medical education in the United States. The editors' efforts to keep it fully up-to-date have now produced a fifth edition, which contains numerous additions and revisions. Some of the changes are more important than others, but the sum total is impressive. The plan of the original text has been continued, as in the previous editions, that is, each disease is considered, so far as is practical, by an author who is especially familiar with it.

The question perennially posed to medical educators as to the merits of one type of textbook of medicine over another is difficult if not impossible to answer to the satisfaction of all concerned. The editors of this particular text have chosen to produce and to continue to produce the symposium type of text, foregoing the brevity of the outline type of book for the sake of greater detail and completeness.

The references are for the most part excellent and to the point, and the lists at the end of each special subject are adequate and not too extensive. By far the greater number are in English and are easily available in the usual medical library. For these reasons the book has a permanent value for the practicing physician. The detail in which a text is written may to some extent offset the lack of accessibility of reference material, but readily available bibliographies mean much to a busy practitioner who can spend no time assembling them himself.

In spite of the multiple authorship of the various sections, the style and manner of presentation are surprisingly consistent. The text is not profusely illustrated, but the illustrations are sufficient for the purpose and are well chosen.

ROBERT C. LOWE, M. D.

PUBLICATIONS RECEIVED

Lea & Febiger, Philadelphia: An Introduction to Medical Science, by William Boyd, M. D., M. R. C. P. (Edin.), F. R. C. P. (Lond.), Dipl. Psych. F. R. S. (Canada). Accidental Injuries, by Henry H. Kessler, M. D., Ph. D., F. A. C. S. The Principles and Practice of Ophthalmic Surgery, by Edmund B. Spaeth, M. D. Dietetics for the Clinician, by Milton Arlanden Bridges, M. D., F. A. C. P.

J. B. Lippincott Company, Philadelphia: Essentials of Endocrinology, by Arthur Grollman, Ph. D., M. D.

The C. V. Mosby Company, St. Louis: Synopsis of Diseases of the Heart and Arteries, by George R. Herrmann, M. S., M. D., Ph. D., F. A. C. P.

W. W. Norton & Company, Inc., New York City: Endocrinology, the Glands and Their Functions, by R. G. Hoskins, Ph. D., M. D.

W. B. Saunders Company, Philadelphia: Textbook of Ophthalmology, by Sanford R. Gifford, M. A., M. D., F. A. C. S.

The Williams & Wilkins Company, Baltimore: Foundations of Neuropsychiatry, by Stanley Cobb, A. B., M. D. Fractures and Other Bone and Joint Injuries, by R. Watson-Jones, B. Sc., M. Ch. Orth., F. R. C. S. The Story of Clinical Pulmonary Tuberculosis, by Lawrason Brown, M. D.